127-370

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1887.

No. 278.

JOSHUA HENDY, APPELLANT,

vs.

THE GOLDEN STATE AND MINERS' IRON WORKS, H. B. ANGELL, WALES L. PALMER, R. F. KNOX ET AL.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CALIFORNIA.

FILED SEPTEMBER 2, 1885.

SUPREME COURT OF THE UNITED STATES.

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JUDD & DETWEILER, PRINTERS, WASHINGTON, OCTOBER 20, 1887.

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Exhibit B—Digest of assignments, agreements, licenses, powers of attorney, &c., recorded in United States Patent Office up to and including July 11, 1883, relating to letters patent No. 140,250, granted Cusenbary and Mars, June 24, 1873	132	54
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1 *Bill of Complaint.*

To the honorable the justices of the circuit court of the United States for the ninth circuit, within and for the district of California, sitting in equity:

Joshua Hendy, of the city and county of San Francisco, State of California, as complainant, brings this his bill against the Golden State and Miners' Iron Works (a corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, all of San Francisco, California, as defendants.

And thereupon your orator complains and says that heretofore, to wit, before the twenty-fourth day of June, in the year one thousand eight hundred and seventy-three, James D. Cusenbary and James A. Mars, both of San Francisco, California, were the original and first inventors of a certain new and useful invention, to wit, improvement in ore-stamp feeders; that the same was a new and useful invention and was not known or used by others before
2 the invention thereof by the said Cusenbary and Mars, and at the time of their said application for a patent therfor had not been in public use or on sale for two years, nor abandoned, nor was it proved to have been abandoned; that the said Cusenbary and Mars, being so as aforesaid the inventors thereof, on the twenty-fourth day of June, A. D. 1873, upon and after due application therefor, did obtain the letters patent of the United States for the said invention, granting and securing to them for the full term of seventeen years from the last-named date the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention and improvement throughout the United States and territories thereof.

Said letters patent were issued in due form of law under the seal of the Patent Office of the United States, and were signed by the Secretary of the Interior and countersigned by the Commissioner of Patents of the United States, and bore date the day and year last aforesaid, a description whereof and of said invention more fully appears in said letters patent, a copy of which said letters patent are hereto annexed and marked Exhibit A and hereby specially referred to and by such reference made a part hereof.

And your orator further shows that by a regular chain of
3 assignment, made in writing and recorded in the United States Patent Office, all of the property in said letters patent after the issuance thereof and all rights and liberties by them conferred were granted and conveyed by and from said Cusenbary and Mars to your orator.

And your orator says that he is still the owner and holder of said letters patent and of the rights, privileges, and liberties by them granted.

That prior to the issuing of said letters patent all proceedings were had and taken which were required by law to be had or taken previous to the issuance of letters patent granting special rights and liberties for new and useful inventions.

And your orator further shows unto your honors that he has always since the date of his said assignment been in the exercise of the full and exclusive right and liberty so granted as aforesaid; that he has made, constructed, used, and vended to others to be used, the said improvement so patented, and has had and maintained until the infringement hereinafter complained of exclusive possession of the said improvement and invention under and by virtue of said letters patent, and has never acquiesced in any invasion or infringement of his said rights.

4 And your orator further shows unto your honors that the respondent- herein, having full knowledge of the premises, and in violation of your orator's exclusive right, liberty, and privileges aforesaid and utterly disregarding the same, have, since the date of said assignment to your orator and before the filing of this bill of complaint, without the license of your orator, at San Francisco, California, in the district of California, and within the jurisdiction of this honorable court, made and sold ore-stamp feeders embracing the improvement and invention described in said letters patent and so secured to your orator as aforesaid.

And your orator alleges that the ore-stamp feeders made and sold by the respondents are infringements of said last-named letters patent, and were made according to the invention therein described and thereby protected and secured to your orator as aforesaid, and contrary to law and the form of the statutes of the United States in such cases made and provided.

And your orator shows that he is informed and believes, and so states to be true, that the respondents in this action intend
5 to continue to infringe upon said letters patent and to unlawfully make and sell said invention as they have already been doing.

Your orator further shows that he has requested the respondents to desist from the manufacture and sale of said invention and to account to your orator for the damages which he has sustained, but that the respondents refuse either to so desist or account.

And your orator further shows unto your honors that he will be subject to great and irreparable injury unless he shall obtain from your honors the relief hereby sought.

To the end, therefore, that the said respondents may, upon their corporal oaths, with regard to the certain specified interrogations hereto annexed and numbered 1 and 2, but without oath as to the residue of this bill (an answer on oath except with regard to said specified interrogatories being hereby expressly waived), full, true, direct, and perfect answer make to all and singular the matters hereinbefore repeated and thereunto distinctly interrogated according to the best of their knowledge, information, and belief, and more especially that they may answer and set forth—

6 First. Whether the letters patent were issued by the United States as in said bill of complaint stated and set forth.

Second. Whether the defendants have made, used, or sold or caused to be made, used, or sold since the twenty-third day of May, one thousand eight hundred and eighty-one or have now in their

possession any ore-stamp feeders constructed and operated similar to that described and claimed in the said last-mentioned letters patent, and, if they have, how many, and how the same are made, and wherein they differ from the machine described in the letters patent referred to herein, if at all.

And that said respondents may answer the premises and may be decreed to account for and pay over to your orator all such gains and profits as have or might have accrued to them from furnishing or making and selling or using such improvements in ore-stamp feeders.

And your orator further prays this honorable court to assess or cause to be assessed the damages which the complainant has sustained by reason of the premises and the infringements herein complained of, and that the respondents be adjudged and decreed to pay over to your orator the damages so assessed.

7 And your orator further prays that the respondents herein, their agents, attorneys, servants, workmen, and employees, may be restrained by an injunction, issuing out of this honorable court, from making, using, or vending to others to be used, or transferring in any way ore-stamp feeders embracing the improvements aforesaid, so secured to your orator as aforesaid, and that the ore-stamp feeders so manufactured or purchased or in any manner obtained by them and now in possession of said respondents may be destroyed or delivered up to your orator, and for such other and further relief as the nature of the case may require and to your honor- seem meet.

May it please your honors to grant unto your orator not only a writ of injunction, conformable to the prayer of this bill, but also the writ of subpœna, directed to the said The Golden State and Miner's Iron Works (a corporation), H. B. Angell, R. F. Knox, Wales L. Palmer, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, commanding them to appear and answer this bill of complaint, and to do and receive what to your honors shall seem meet.

BOONE & MILLER,
Solicitors for Complainant.

JOHN L. BOONE, *of Counsel.*

8 CITY AND COUNTY OF SAN FRANCISCO, }
State of California, } *ss:*

Joshua Hendy, being duly sworn, on his oath says that he is the complainant in the foregoing-entitled case; that he has heard the foregoing bill of complaint read and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he believes them to be true.

JOSHUA HENDY.

Subscribed and sworn to before me this 29th day of July, A. D. 1881.

JOS. F. O'BEIRNE,
Comm'r of U. S. Circuit Court, Cal.

9 EXHIBIT A.

No. 140,250.

The United States of America to all to whom these presents shall come:

Whereas James D. Cusenbary and James A. Mars, of San Francisco, California, have presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in ore-stamp feeders, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and have complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimants are adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Cusenbary and Mars, their heirs or assigns, for the term of seventeen years from the twenty-fourth day of June, one thousand eight hundred and seventy-three, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

10 In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this twenty-fourth day of June, in the year of our Lord one thousand eight hundred and seventy-three, and of the Independence of the United States of America the ninety-seventh.

[Seal of the Patent Office.]

W. H. SMITH,
Acting Secretary of the Interior.

Countersigned:
J. M. THACHER,
Acting Commissioner of Patents.

(Here follows diagram marked p. 11.)

12 UNITED STATES PATENT OFFICE.

JAMES D. CUSENBARY and JAMES A. MARS, of San Francisco, Cal.

Improvement in Ore-Stamp Feeders.

Specification forming part of Letters Patent No. 140,250, dated June 24, 1873; application filed April 21, 1873.

To all whom it may concern:

Be it known that we, James D. Cusenbary and James A. Mars, of the city and county of San Francisco, State of California, have invented certain new and useful improvements in ore-feeders for

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J. D. CUSENBARY & J. A. MARS.

Ore-Stamp Feeders.

No. 140,250. Patented June 24, 1873.

Fig. 1.

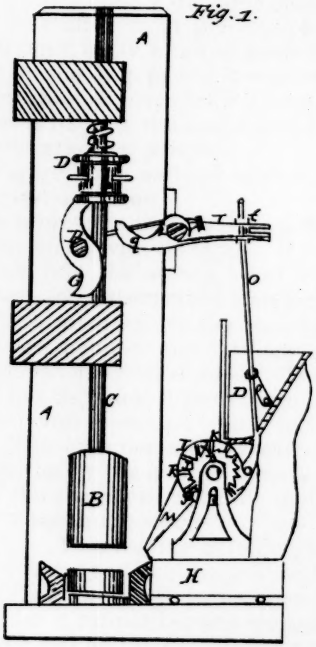


Fig 2

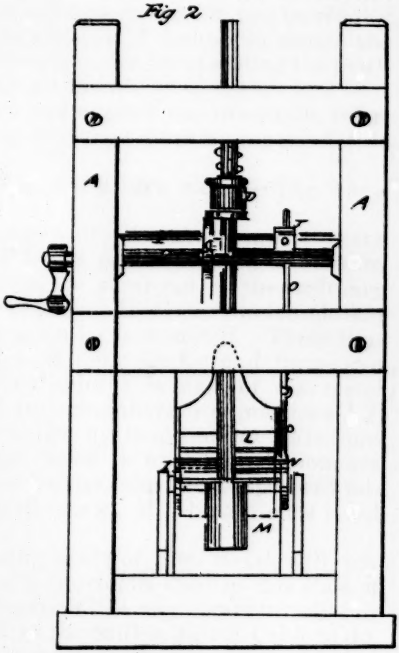
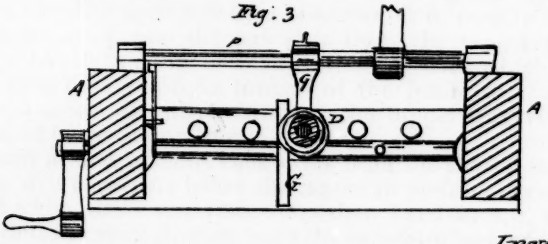
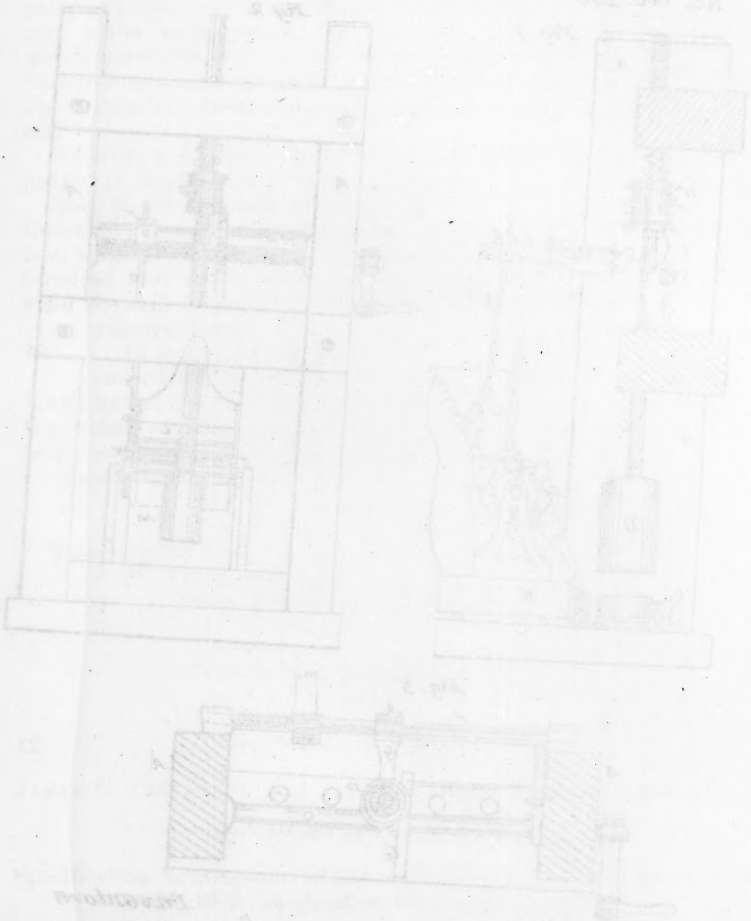


Fig. 3



Witnesses
John L. Boone
C. M. Richardson

Inventors
James D. Cusenbary
James A. Mars
per Dewey & Co
Attys



quartz mills, and we do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

Our invention relates to improvements in that class of ore-feeders for quartz mills in which a pawl and ratchet are employed to operate the feeder automatically by the drop of the stamp.

Our improvements consist, first, in mounting a feed-cylin-
13 der upon a movable frame or track so that it can be readily shifted from place to place when it is desired to repair the mill; and, lastly, of an improved arrangement for operating the pawl-rod by the drop of the stamp without the use of springs.

In order to more fully illustrate and explain our invention, reference is had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a vertical section, Fig. 2 is a back view, — Fig. 3 is a transverse section.

A represents the frame of a stamp mill; B is the stamp; C is the stamp-stem, with its tappet D; F is the cam-shaft, and G the cam which lifts the stamp, all of which are arranged in the ordinary manner of constructing a stamp battery. H H are the foundation timbers upon which the feeding cylinder is mounted. These timbers are mounted upon rollers so that the cylinder and frame can be moved about as desired. The cylinder I is made of cast metal and has its outer surface formed into chambers or depressions J J, which are separated from each other by longitudinal partitions K. The cylinder and its carriage, when in working position, are placed below the hopper L, so that the ore from the hopper will fal- into the chambers upon an inclined apron, M, which directs it bel neath the stamp.

14 This feeding cylinder, being made of cast metal, will not wear out like the endless belts heretofore used in this class of machines, and as it turns upon journals like any common roller or cylinder it cannot become clogged, as the endless belt is liable to do. To one end of the cylinder or ratchet-wheel N is secured and this ratchet-wheel is operated by a pawl-bar, C, to revolve the cylinder.

In order to operate the pawl-bar from the tappet a horizontal shaft, *p*, has its opposite ends supported in boxes, which are secured to the sides of the upright timbers of the frame, so that the shaft will pass across directly in front of the tappet transversely to the movement of the stamp-stem.

A fixed arm, *q*, extends backwards from the shaft *p* so that its extremity will terminate below the tappet in position to receive a blow from it when the stamp falls. Another fixed arm, *r*, extends forward from the shaft directly over the ratchet-wheel, and to the extremity of this arm the upper end of the pawl-bar *o* is attached by means of a trunnion block, *t*. This bar extends down to the middle of the periphery of the ratchet-wheel and has one or more upward projecting teeth on its lower end, which serve to engage

15 with the teeth of the ratchet when the pawl is lifted by the rock-shaft and thus rotate the feeding cylinder.

It will therefore be evident that at each drop of the stamp the tappet will strike the arm *q* and carry it downward, thus giving the shaft *p* a rocking motion, the weight of the pawl and its arm *r* serving to rotate the shaft in an opposite direction, thus feeding the ore automatically when it is needed.

When there is a sufficient quantity of ore beneath the stamp the drop will not be sufficient to operate the cylinder; but when the quantity of ore beneath the stamp is reduced the drop is greater, and consequently the tappet strikes the arm *q* and operates the cylinder.

Having thus described our invention, what we claim and desire to secure by letters patent is—

1. The feeding cylinder I mounted upon the movable timbers H H, substantially as and for the purpose above described.

2. The rock-shaft *p* with its fixed arms *q r*, in combination with its pawl-bar *o*, ratchet-wheel N, and feeding cylinder I, when arranged to be operated by the tappet D, substantially as and for the purpose described.

In witness whereof we have hereunto set our hands and seals.

JAMES D. CUSENBARY. [L. S.]
JAMES A. MARS. [L. S.]

Witnesses:
J. L. BOONE.
C. M. RICHARDSON.

(Endorsed:) Filed July 29, 1881. L. S. B. Sawyer, clerk, by J. F. O'Beirne, deputy clerk.

16 *Subpœna.*

UNITED STATES OF AMERICA:

Circuit Court of the United States, Ninth Circuit, District of California. In Equity.

The President of the United States of America to the Golden State and Miners' Iron Works (a corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, Greeting:

You are hereby commanded that you be and appear in said circuit court of the United States aforesaid, at the court-room in San Francisco, on the first Monday of September, A. D. 1881, to answer a bill of complaint exhibited against you in said court by Joshua Hendy, who is a citizen of the State of California, and to do and receive what the said court shall have considered in that behalf; and this you are not to omit under the penalty of five thousand dollars.

Witness the Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, this 29th day of July, in the

year of our Lord one thousand eight hundred and eighty-one, and of our Independence the 106.

[Seal of the U. S. Circuit Court.]

L. S. B. SAWYER, *Clerk*,
By J. F. O'BEIRNE,
Deputy Clerk.

17 *Memorandum Pursuant to Rule* 12, *Supreme Court U. S.*

You are hereby required to enter your appearance in the above suit on or before the first Monday of September next, at the clerk's office of said court, pursuant to said bill; otherwise the said bill will be taken *pro confesso*.

L. S. B. SAWYER, *Clerk*,
By J. F. O'BEIRNE,
Deputy Clerk.

(Endorsed.)

OFFICE OF U. S. MARSHAL,
DISTRICT OF CALIFORNIA.

I hereby certify that I received the within writ on the 29th day of July, 1881, and on the 30th day of July, 1881, I personally served the summons on The Golden State and Miners' Iron Works (a corporation), by Wales L. Palmer, the president of said corporation, H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, and C. F. Moulthrop, and on the 1st day of August, 1881, on Israel F. Knox, defendants named, by delivering to and leaving with each of said defendants personally an attested copy of this writ.

A. W. POOLE, *U. S. Marshal*,
By B. J. ACKERMAN, *Deputy.*

Filed Aug'st 3, 1881.

L. S. B. SAWYER, *Clerk*,
By J. F. O'BEIRNE,
Deputy Clerk.

18 *Answer.*

In the Circuit Court of the United States, District of California, Ninth Circuit. In Equity.

JOSHUA HENDY, Complainant,
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS (a Corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, Defendants. } No. 2628.

These defendants, reserving to themselves all right of exception to the complainant's bill of complaint on file herein, for answer thereto saith—

That they are informed and admit to be true that letters patent of the United States were granted and issued to James D. Cusenbary

and James A. Mars on the 24th day of June, 1873, for an alleged improvement in ore-stamp feeders, and these defendants say that they do not know and are not informed, save by said bill of complaint, whether or not the said James D. Cusenbary and James A. Mars did properly make application for said patent and did comply with all the requirements of law, and did have said patent issued
19 to them in due form of law, and leave the complainant to make such proof thereof as he shall be advised is material.

And these defendants, further*ing* answering, say that they do not know and are not informed, save by said bill of complaint, whether or not the said James D. Cusenbary and James A. Mars sold or assigned their right, title, and interest in the said patent and alleged invention secured by said patent to said complainant, or whether or not such alleged assignment was recorded in the Patent Office, and they leave the complainant to make such proof as he shall be advised is material.

And the defendants, on information and belief, deny that, by virtue of any such patent and assignment as mentioned in the said bill of complaint, said complainant became or ever was possessed of or vested with any exclusive right to make, use, or sell in the United States or elsewhere the alleged invention patented in and by said letters patent.

And defendants deny that the said Cusenbary and Mars were the original or first inventors of the alleged inventions patented in and by said letters patent, or that the said alleged inventions were new or unknown to the public at the time of their application for said patent.

20 And the defendants, further answering, say that they are informed and believe it to be true that the description of the alleged invention as set forth in the specification annexed to said letters patent is incomplete and ambiguous, and that said specification does not show the method of making and using the said alleged patented invention in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains to make or use the same.

And defendants, further answering, deny that the said invention so patented in and by said letters patent to said James D. Cusenbary and James A. Mars is of any utility or value whatever, or that the same has been introduced into public use, or that the public generally or any portion thereof have acquiesced in and acknowledged the complainant's or the said alleged patentee's exclusive right to the same or any portion thereof, and the defendants aver that the said alleged invention patented in and by the said letters patent is wholly useless, inoperative, and of no value whatever and wholly void, and was never used for any purpose whatever.

And the defendants, further answering, say that the same invention and the same principle and combination thereof was described in and patented to Charles P. Stanford by United States
21 letters patent No. 21030, granted and issued to said Stanford by the Government of the United States on the 27th day of July, A. D. 1858, and that the same invention and the same prin-

ciple and combination thereof was described in and patented to Thomas A. Cockrane by United States letters patent No. 139,370, granted and issued to said Cockrane by the Government of the United States on the 27th day of May, A. D. 1873.

And defendants, further answering, deny that they or either or any of them have ever contrived to injure said complainant or to defraud him of any profits, benefits, and advantages whatever, and these defendants deny that they or either or any of them have at any time heretofore manufactured, used, or sold or are now manufacturing, using, or selling, in the district of California or elsewhere, any ore-stamp feeders made in accordance with the descriptions set forth in the aforesaid letters patent sued upon in this cause, and say that they have not in any way infringed and do not now infringe said patent; and the defendants deny that the said complainant is entitled to the relief or any part thereof in the said bill of
22 complaint demanded.

Wherefore defendants pray leave to be dismissed with their reasonable costs in this behalf sustained.

WHEATON & SCRIVNER,
Solicitors for Defendants.

STATE OF CALIFORNIA, }
City and County of San Francisco, } *ss:*

R. F. Knox, being duly sworn, on his oath says that he is one of the defendants in the foregoing entitled case; that he has heard the foregoing answer read and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information or belief, and as to those matters he believes it to be true.

R. F. KNOX.

Subscribed and sworn to before me this 8th day of October, A. D. 1881.

[NOTARIAL SEAL.] LEE D. CRAIG,
Notary Public.

23 (Endorsed:) Service of the within answer and receipt of a copy thereof admitted this 11th day of October, 1881. Boone & Miller, attorneys for plaintiff. Filed Oct. 11th, 1881. L. S. B. Sawyer, clerk, J. F. O'Beirne, deputy.

24 *Replication.*

Circuit Court of the United States for the District of California, Ninth Judicial Circuit.

JOSHUA HENDY, Complainant,

vs.

THE GOLDEN STATE AND MINERS' IRON WORKS, Defendants.

Replication of Joshua Hendy, complainant, to the answer of the Golden State and Miners' Iron Works, defendants.

This repliant, saving and reserving to himself now and at all times hereafter all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereunto, saith that he will aver, maintain, and prove said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the defendant is uncertain, untrue, and insufficient to be replied unto by this repliant; that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied unto and not herein or hereby well and sufficiently replied unto, confessed and avoided, traversed or denied, is true.

25 All of which matters and things this repliant is and will be ready to aver, maintain, and prove as this honorable court shall direct, and humbly pray as in and by the said bill he has already prayed.

BOONE & MILLER,
Solicitors for Complainant.

(Endorsed:) Service of the within replication and receipt of a copy thereof admitted this 7th day of November, 1881. Wheaton & Scrivner, attorneys for defendants. Filed 7 day of Nov., A. D. 1881. L. S. B. Sawyer, clerk, by J. F. O'Beirne, deputy clerk.

26 *Enrollment.*

United States Circuit Court, Ninth Circuit, District of California.

JOSHUA HENDY, Complainant,
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS *et al.*, Respondents. } No. 2628.

The complainant filed his bill of complaint herein on the 29th day of July, 1881, which is hereto annexed.

A subpœna to appear and answer in said cause was thereupon issued, returnable on the first Monday of September, A. D. 1881, which is hereto annexed.

The respondents appeared herein on the 5th day of September, 1881, by Wheaton and Scrivner, Esq's, their solicitors.

On the 11th day of October, 1881, an answer was filed herein, which is hereto annexed.

On the 7th day of November, 1881, a replication to said answer was filed herein, which replication is hereto annexed.

Thereafter a final decree was filed and entered herein in the words and figures following, to wit:

27 At a stated term, to wit, the July term, A. D. 1884, of the circuit court of the United States of America of the ninth judicial circuit in and for the district of California, held in the court-room, in the city and county *county* of San Francisco, on Monday, the 25th day of August, in the year of our Lord one thousand eight hundred and eighty-four.

Present: The Honorable Lorenzo Sawyer, circuit judge.

Decree.

JOSHUA HENDY
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS *et al.* } No. 2628.

This cause came on to be heard at the last term, and was argued by counsel, and thereupon, upon consideration thereof, it is ordered, adjudged, and decreed that the complainant's bill of complaint herein be, and the same hereby is, dismissed at complainant's cost.

LORENZO SAWYER.
U. S. Circuit Judge.

(Endorsed:) Filed & entered August 25, 1884. L. S. B. Sawyer, clerk.

28 *Memorandum of Costs and Disbursements.*

UNITED STATES OF AMERICA:

Circuit Court of the United States, Ninth Circuit, District of California.

JOSHUA HENDY, Plaintiff,

vs.

GOLDEN STATE AND MINERS' IRON WORKS *et al.*, Defendants.

Disbursements:

Examiner	$15 20
Clerk's fees	10 00
Witness fees, Ormand Crandell, 1 day	1 50

Examining 5 witnesses (over)	12 50
Docket fee	20 00
	59 20
Oath to cost bill	25
Taxed at	59 45

L. S. B. SAWYER, *Clerk*,
By F. D. MONCTON,
Dep'y Cl'k.

UNITED STATES OF AMERICA,
District of California, City and County of San Francisco, } ss:

John H. Roberts, being duly sworn, deposes and says that he is clerk of the attorney for the defendants in the above-entitled cause, and as such is better informed relative to the above costs and
29 disbursements than the said M. A. Wheaton, attorney; that the items in the above memorandum contained are correct to the best of this deponent's knowledge and belief, and that the said disbursements have been necessarily incurred in the said cause.

JOHN H. ROBERTS.

Subscribed and sworn to before me this 29th day of August, A. D. 1884.

F. D. MONCTON,
Commissioner of U. S. Circuit Court, &c.

(Endorsed.)

To Messrs. Langhorne & Miller, sol's for complainant:

You will please take notice that on Monday, the 1st day of September, A. D. 1884, at the hour of 11 o'clock a. m., I will apply to the clerk of said court to have the within memorandum of costs and disbursements taxed pursuant to the rule of said court in such case made and provided.

M. A. WHEATON,
Attorney for Def'ts.

List of witnesses examined & whose examinations were taken: J. Hendy, C. W. Duffy, G. E. Woodbury, J. A. Mars, O. Crandall.

Service accepted this 29th day of August, A. D. 1884, without waiving any objections as to time.

LANGHORNE & MILLER,
Sol's for Complainant.

Filed this 29th day of August, A. D. 1884.

L. S. B. SAWYER, *Clerk*,
By F. D. MONCTON,
Deputy Clerk.

30 *Certificate to Enrollment.*

Whereupon said pleadings, subpœna, final decree, and memorandum of taxed costs are hereto annexed, said decree being duly signed, filed, and enrolled pursuant to the practice of said circuit court.

Attest, &c.

[Seal of the U. S. Circuit Court.]

L. S. B. SAWYER, *Clerk*,
By F. D. MONCTON,
Deputy Clerk.

(Endorsed:) Enrolled papers. Filed August 25, 1884. L. S. B. Sawyer, clerk, by F. D. Moncton, deputy clerk.

31 *Depositions.*

In the Circuit Court of the United States for the Ninth Circuit within and for the District of California.

JOSHUA HENDY
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS *et al.* } No. 2628.

Be it remembered that on the twentieth day of September, A. D. 1883, and upon the several days to which the examination was regularly continued, as hereinafter appears, at my office, in the city and county of San Francisco, State of California, before me, S. C. Houghton, examiner in chancery of the circuit court of the United States for the ninth circuit and district of California, personally appeared the several witnesses whose names are hereinafter set forth on behalf of the respective parties to the above-entitled case.

J. H. Miller, Esq., appeared as solicitor for complainant, and M. A. Wheaton, Esq., as solicitor for respondents.

Following is a record of the proceedings:

32 *Deposition of Joshua Hendy.*

THURSDAY, *September 20th*, 1883.

Present: Mr. Miller, solicitor for complainant; Mr. Wheaton, solicitor for respondent-.

Ex. "A."—(Complainant puts in evidence certified copy of United States letters patent No. 140,250, issued June 24, 1873, to James D. Cusenbary and James A. Mars, for an improvement in ore-stamp feeders, marked "Complainant's Exhibit A."

Ex. "B."—Also certified copy of chain of title from the patentees named in the patent, Exhibit A, to Joshua Hendy, complainant, of the right, title, and interest in and to the patent, Exhibit A, marked "Complainant's Exhibit B.")

Examination-in-chief of JOSHUA HENDY on behalf of complainant.

By Mr. MILLER:

Q. 1. You are the complainant in this case, I believe, are you not?
A. Yes, sir.
Q. 2. And the owner of this patent issued to Cusenbary and Mars, which is sued on, I believe?
A. I am.
33 Q. 3. Look at the model now presented and state what that is.
A. This represents the patent of Cusenbary and Mars.

Ex. "C."—(The model above referred to is introduced in evidence by complainant and marked "Complainant's Exhibit C.")

Q. 4. Where and from what was that model made?
A. It was made in San Francisco, and made from the specifications and drawings of the patent, somewhat modified in shape; made somewhat different in the construction of the frame-work.
Q. 5. Does that model contain all of the inventions specified in that patent?

Obj.—(Objected to by respondents as incompetent, as calling for a conclusion instead of for facts.)

A. I believe it does.

Obj.—(Respondents object to the introduction of the model, because the witness testifies that it is not made after the description of the invention contained in the patent.)

Q. 6. What changes have been made in the model from the description in the patent?
A. It has been changed to make it more mechanical in its construction.
Q. 7. Has it been changed in any material particular?
34 (Objected to as incompetent and withdrawn.)

Q. 8. State what the change is.
A. The patent represents a cylinder mounted upon movable timbers, with a piece of timber going upon the back side to support the hopper. In the model it is represented as a frame-work, two posts going up in the back, two in front, and cross-timbers so mounted as to support the feed roller and the hopper.
Q. 9. Are you a mechanic?
A. Yes, sir.
Q. 10. What is your judgment as a mechanic with regard to the changes in the model from the description of the patent?
A. The model is more mechanical than the device described in the patent.
Q. 11. Look at the patent and state what is the principle of the machine embraced in that patent.

Obj.—(Objected to by respondents as incompetent, as calling upon the witness to give a description of the patent.)

A. The description describes a feed cylinder with a hopper conducting the ore to the feed roller. By the revolving of that feed roller it carries the ore and discharges it over its periphery.

Q. 12. What revolves the roller?

35 A. A pawl and ratchet wheel, by the drop of the stamp, which moves the pawl or ratchet by intervening mechanism, such as lever and rod.

Q. 13. To what is the ratchet wheel connected?

A. The ratchet wheel is connected to the shaft that is secured to the feed roller.

Q. 14. From whence is derived the power that turns the roller?

A. From the drop of the stamp.

Q. 15. How are the roller and the hopper constructed?

A. The roller is constructed with recesses upon its outer surface. The hopper is constructed with an inclined plane and a vertical front, and the lower portion of the hopper is nearly horizontal, coming in close contact with the cylinder, with a sliding gate in front of it to regulate the amount of ore to discharge onto the feed roller.

Q. 16. Just describe what would be the operation of that machine when you put ore in the hopper.

A. In putting ore in there a portion of the ore would come onto the feed roller, and as the feed roller revolved the ore would follow onto the feed roller, and it would discharge over the surface of the roller into the mortar.

36 Q. 17. Then what is the principle of that machine?

A. The principle of that machine is a feed roller feeding stamp mills.

Q. 18. Look at this model, Exhibit C, and state what would be the operation of that machines when the ore is put into the hopper.

A. The hopper represents the feed roller mounted upon a movable frame. The operation would be the same as I have described from the other patent.

Q. 19. How many claims are there in that patent, Exhibit A?

A. There *is* two claims in it. I will say that the model (Exhibit C) does not represent all the claims—does not represent the second claim. I did not put that in the model because I did not think it was necessary, because it would be easily understood—easily explained. The principle, the main feature, of the invention is the mounting of the cylinder upon a movable frame.

Q. 20. Is that part covered by the second claim the only part of the patent that you have left out in the model, Exhibit C?

A. Yes, sir.

Q. 21. Do you claim that the second claim has been infringed by the defendants?

A. Not particularly; no.

37 Q. 22. Which claim do you rely on as having been infringed by the defendants?

A. The first claim.

Ad'n.—Mr. MILLER: We do not claim an infringement by the respondents of the second claim of this patent, Exhibit A.

Q. 23. What is the object of the invention described in that patent, Exhibit A?

A. The invention is for feeding ore over a cylinder mounted on movable timbers.

Q. 24. Will a machine constructed according to that patent accomplish that purpose?

Obj.—(Objected to by respondents, unless the witness has seen it tried and knows in regard to the matter.)

A. It will; there is no question about it whatever.

Q. 25. Suppose you were to put ore in the hopper of this model, Exhibit C, and rotate the feed cylinder by any proper device, would it feed the ore over that cylinder?

A. Yes, sir.

Q. 26. Have you read the specifications of that patent, Exhibit A?

A. I have.

Q. 27. I will ask you here in what business are you engaged?

38 A. Manufacturing mining machinery. I have been engaged in that business twelve or fourteen years.

Q. 28. Are you a mechanic yourself?

A. I am.

Q. 29. Could you construct a machine from the description contained in that patent?

A. Yes, sir; from reading the specifications I could construct a practical working machine. I might not follow the exact indications laid down in the specification; I would follow it to some extent.

Q. 30. Could you construct an operative machine containing the invention described in that patent from the description given in the patent?

A. I could.

Stip'n.—(It is agreed by counsel for both complainant and respondents that the model introduced in evidence in the case of Hendy *vs.* The Golden State and Miners' Iron Works *et al.*, number 2582 in this court, and marked "Complainant's Exhibit D," may be used and referred to in this case with the same force and effect as if it were introduced in evidence in this case.)

Q. 31. Look at the model, Exhibit D, and state what you
39 know about any machines constructed like that model.

A. I have seen ore-feeders at the Golden State and Miners' Iron Works resembling this model. The first one I saw there was about eight or ten months ago.

Q. 32. Do you know whether they are still selling machines like that?

A. I saw one at the mechanics' fair in this city within a few days on exhibition. If my memory serves me, they had one at the fair on exhibition last year; consequently it must have been before that that I saw the first one of them at their works.

Q. 33. How do you know it was one of the defendants' machines—the one that is now on exhibition at the mechanics' fair?

A. I am so informed.

Q. 34. Did you see the machine?

A. I saw the machine.

Q. 35. Did you see their names on it?

A. No; I didn't look after that. There were some circulars there close by. I didn't look to see what was on them either. It was simply represented to me that it was a machine from the miners' iron works.

Q. 36. State generally the principle involved in that model, Exhibit D.

A. This model represents a smooth cylinder mounted upon movable timbers.

40 Q. 37. What is the purpose of the cylinder?

A. For feeding ore to a battery similar to Exhibit C.

Q. 38. Is that model, Exhibit D, a representation of a machine which you claim to be an infringement of the patent, Exhibit A?

A. It is.

Q. 39. State wherein the infringement consists.

A. It consists in feeding ore over a cylinder mounted on movable timbers.

Obj.—(Respondents object to the answer and move to strike it out on the ground that the patent does not cover the ground that the answer does and the patent must show for itself.)

Q. 40. What is your opinion as an expert with reference to the similarity of the cylinder shown in the patent, Exhibit A, and the cylinder shown in the model, Exhibit D, as a device in a machine of that character?

A. They are alike, except that one has ribs or recesses on its surface and the other is smooth.

Q. 41. Do you or do you not consider them to be mechanical equivalents?

A. They are both cylinders for the purpose of having ore fed over them; one hasn't got the equivalents of the other as to the ribs.

41 Q. 42. I ask you, do you consider the two cylinders equivalents of each other?

A. I do.

Q. 43. What would be the operation of the cylinder described in the patent, Exhibit A, in case wet or sticky ore were fed over it?

A. That would become smooth of itself. The sticky ore would fill up the recesses, and that part of the ore would lodge in the recesses, and the roller would become smooth.

Q. 44. Does the smooth cylinder shown in the model, Exhibit D, and in the machines constructed upon the principles contained in that model accomplish the same or a different purpose from that accomplished by the cylinder, as shown in the patent?

A. It accomplishes the same purpose.

Q. 45. How is that purpose accomplished in the model, Exhibit D, by the smooth cylinder? How is the cylinder operated?

A. It is operated by the drop of the stamp, the same as in the machine described in that patent.

Q. 46. Do you know all these defendants?

A. I know them all except Mr. Moulthrop.

Q. 47. Where are they doing business?

42 A. In San Francisco.

Q. 48. What is the general nature of their business?

A. The manufacture of machinery—mining and other machinery—foundry works.

Q. 49. Do you know as to their having made ore-feeders like this model, Exhibit D?

A. I have heard of them simply.

Q. 50. Have you seen any of the feeders?

A. Yes; I have several of them in this city.

Ad'n.—(Respondents admit that since the date of the assignment to the complainant of the patentee's rights under patent, Exhibit A, the respondent corporation has made and sold ore-feeders having a hopper, with a gate in front of the hopper and a feeding roller underneath, such feeding roller operated by the stroke of the tappet of the stamp, substantially as shown in the model, Exhibit D.)

Ad'n.—It is also admitted by both complainant and respondents, that the Golden State and Miners' Iron Works is a corporation organized and existing under the laws of the State of California, and

43 that H. B. Angell, Wales L. Palmer, Cyrus Palmer, Israel H. Knox, and R. F. Knox are its directors; and that C. F. Moulthrop is a clerk in the employ of said corporation; and that R. F. Knox has no interest in said corporation, except that he is a nominal holder of a few shares of its stock.)

Cross-examination of JOSHUA HENDY by Mr. WHEATON:

Q. 1. How many years' experience have you had in making ore-feeding machines?

A. Since 1873 or 1874.

Q. 2. Then since that time ore-feeders have been very much improved and perfected, have they not?

A. They have.

Q. 3. Have you ever seen at work an ore-feeder made as described in this patent, Exhibit A?

A. I have never seen any myself.

Q. 4. Have you ever made one of those machines since you owned the patent?

A. I have made them without the corrugations in the feed roller.

Q. 5. What was your object in leaving the corrugations out of the feed roller?

44 A. I did not think it was necessary to have it; that it would fill up with the sti-ky ore that they are liable to encounter in mining.

Q. 6. When did you first make any of the kind mentioned, without corrugations in the feed roller?

A. Probably about a year and a half ago.

Q. 7. Was that after the defendants had commenced making them?

A. I could not say that. I don't know when they commenced?

Q. 8. Was it after you knew that somebody was making ore-feeders like the model, Exhibit D?

A. I knew there was one working in the Keystone mine, Amador county.

Q. 9. Had you any intention when you obtained this patent, Exhibit A, of manufacturing that class of ore-feeders?

Obj.—(Objected to by complainant on the ground that the intention of the witness is a matter entirely irrelevant and immaterial.)

A. I never gave that matter consideration.

Q. 10. Were you not at the time that you purchased this patent manufacturing ore-feeders which didn't have any cylinder in
45 them and which ore-feeders you considered at that time and have ever since considered very much superior to machines made under this patent, Exhibit A?

Obj.—(Objected to by complainant as incompetent, irrelevant, and immaterial.)

A. I had been before and since; making them now.

Q. 11. You have also made ore-feeding machines which didn't have feeding cylinders in them, have you not, and are still making them?

A. The ones that I have been making, that I consider the best machines, have no feeding cylinder, and I made such machines before I obtained this patent, Exhibit A.

Q. 12. Had you any fears that ore-feeders made as described in the patent, Exhibit A, would ever successfully compete with the ore-feeders which you had been making and selling?

Obj.—(The same objection by complainant.)

A. They would not successfully compete where a truthful statement was made. They might compete where there was fraud practised. They are, unquestionably, an inferior machine to what I make.

Q. 13. Did you find the machines made by the defendants, with the smooth feeding cylinder, successfully competing with the ore-feeding machines that you were making?

46 Obj.—(Objected to by complainant as irrelevant, immaterial, and incompetent.)

A. They are competing to some extent.

Q. 14. Was there ever any machine made as described in the patent, Exhibit A, with a corrugated cylinder, in competition in the market or in the mills with your machines, which you were and still are making and selling?

Obj.—(Same objection by complainant.)

A. No, sir.

Q. 15. You stated that you could make a successful ore-feeding machine by following the description contained in the patent, Exhibit A, but would modify it some. In order to make a good feeding

ore machine what modifications would you make from the description shown in the patent, Exhibit A?

A. I would make it similar to the model, Exhibit D, in its frame-work. It would work with a ratchet and pawl, as represented in the patent description; but, with my experience, I would use a little different mechanism for that purpose which is better.

Q. 16. Are the ore-feeding machines which you make and sell mounted upon rollers, so that the cylinder and pawl can be moved about as desired?

47 Obj.—(Objected to by complainant as irrelevant and immaterial.)

A. All the machines that I build are mounted upon rollers.

Q. 17. Did you ever see any of these machines made by the defendant- mounted on rollers?

A. I never noticed that part of it. They are made with movable frames, but the rollers are only made to require less force to move the machine.

Q. 18. Explain what you mean when you say that the defendants' machines are made with movable frames?

A. That is, they are not fastened down. They are made so that you can easily move them away from the battery. They are not attached, fastened, or secured in any manner to any of the structure of the mill. They are made so that they are portable. They are made so that you can get them away from the other part of the machinery. They are made independent in themselves.

Q. 19. Were not ore-feeding machines always made independent in the manner that you have described, so that they could be moved, long before the defendants or you made ore-feeding machines?

A. No; the Standford patent was the only old patent that
48 I know of; it was attached to the mill timbers.

Q. 20. Are you sure that the Stanford patent shows anything attached to the mill timbers?

A. It was not constructed in an independent frame-work as these machines are.

Q. 21. Have you examined the Stanford patent lately?

A. I am owner of it.

Q. 22. There is one Stanford patent for ore-feeders which has expired, is there not?

A. Yes, sir. I have reference to that one. I was the owner of that before it expired.

Q. 23. Have you examined that recently?

A. Not recently; no, sir.

Q. 24. Have you a distinct recollection as to what sort of a frame the specifications of that patent described?

A. I have not. Those machines were mostly failures and seldom used.

Q. 25. So far as your knowledge goes, were not those Stanford ore-feeding machines made under that patent, which has now expired, used to a greater extent than any ore-feeding machines made with corrugated feeding rollers, as described in the patent, Exhibit A?

Obj.—(Objected to by complainant as irrelevant and immaterial.)

A. So far as my knowledge goes, which is very limited, they were.

49 Q. 26. Were the principle and the devices for actuating that old Stanford feeder made under the patent that is now expired, by the tappet and the stamp stem, substantially the same as has been used since?

Obj.—(Objected to by complainant on the ground that the mode of operation shown in the Stanford patent can best be shown by the patent itself.)

A. All the ore-feeders that I know anything about would be and have been operated by the stamp stem.

Re-examination of JOSHUA HENDY by Mr. MILLER:

Q. 1. What is the object of the rollers shown in the patent, Exhibit A?

A. The rollers are to make it easier to move the portable frame.

Q. 2. Could the frame be moved without the rollers?

A. O, yes; it is only a question of force.

Q. 3. Could machines constructed similar to the model, Exhibit D, be moved about easily from place to place?

A. They could be; yes, sir.

Q. 4. This model, Exhibit D, has no rollers on it, I believe?

50 A. It has not; that machine can be moved with rollers or without. It is portable—movable in either case.

Q. 5. What do you consider is meant by the expression in the patent "mounted on movable timbers?"

Obj.—(Objected — by respondents as incompetent, calling for a construction of the patent.)

A. Timbers that are movable without taking them apart. I take it for granted that the timbers are framed together in some shape to hold this machinery and the whole ore-feeder is portable within itself.

Q. 6. Do you know what the principle claim in the original Stanford patent was?

A. My memory don't serve me as to the details of that machine. It was an up-and-down machine, having a tray supported from some timbers above, and the tray was hinged to a shoe, from which the ore discharged onto this movable tray.

Q. 7. Were there any ore-feeders in existence before that Stanford ore-feeder was invented?

A. I never heard of any.

Q. 8. So far as you knew, then, that was the first ore-feeder that was invented?

A. That was the first ore-feeder that was used in the mills

51 on this coast that I know anything about.

Q. 9. Do you know how long it was before patents were granted for any other kinds of ore-feeders?

A. Probably fourteen years after that was granted—fourteen or fifteen years after.

Q. 10. Do you know how ore was fed to a battery before the Stanford feeder was invented?

A. By a shovel, I believe; in fact they were mostly fed with a shovel after the invention of the Stanford feeder, anyway, because the Stanford feeder was not a success.

Q. 11. But Stanford ore-feeders were used, I understand you to say?

A. To a very limited extent; they were mostly failures.

Q. 12. Wherein were they failures?

A. They were uncertain in their operations of feeding the ore to the stamp, and the stamp would get out of rock and it would damage the mill—cause breakages. They would not feed regularly, and the stamps would come down solid upon the dies, loosen the tappets, sometimes break the cam or the cam shaft, knock the bottom out of the mortars.

By Mr. WHEATON:

52 Q. 13. That depended, did it not, on the condition of the ore which was fed, whether it was dry or wet and sticky?

A. Yes, to a very great extent, but not entirely so. I might say that the same trouble, the same difficulties, occur with either one of these feeders represented by these two models, Exhibits C and D. The Cusenbary and the Mars and the Temple, too, are susceptible to some extent to those objections. Wet, sticky ore would be troublesome in either of those two feeders. Rock uneven in size would be rather a serious objection in either of them. Where the ore is dried and nicely crushed to a uniform size either one of those feeders will feed ore.

53 *Deposition of Duffy.*

Examination-in-chief of CHARLES W. DUFFY on behalf of complainant.

By Mr. MILLER:

Q. 1. State your place of residence and your business.

A. I live in San Francisco, and at present I am superintendent of the San Francisco Pavement Company; I am a practical mechanic.

Q. 2. How much experience have you had with regard to machinery and mechanics?

A. About fifteen years.

Q. 3. Have you seen this patent, Exhibit A?

A. Yes, sir.

Q. 4. Do you understand the principle of the operation of the machine described in that patent?

A. Yes, sir.

By Mr. WHEATON:

Q. 5. Have you ever used an ore-feeder in a mining mill at all?
A. Yes, sir.
Q. 6. How long and what kind?
A. Three or four years. I used a Challenge feeder and one I constructed myself.

54 By Mr. MILLER:

Q. 7. Where?
A. In Arizona I used the Challenge feeder, and here in California I used one I constructed myself.

By Mr. WHEATON:

Q. 8. Did any ore-feeder that you ever used work with a feeding cylinder?
A. No, sir.
Q. 9. Have you any practical knowledge of the operation of machines made with feeding cylinders, so as to know how they operate when ore is wet and sticky or when it is dry, or any of those things?
A. Only from analogy.
Q. 10. Have you any practical knowledge on that subject?
A. No practical knowledge; not as applied to this.

Obj.—Mr. WHEATON: I object to this witness on the ground that he is not an expert as to the questions involved in this case.

By Mr. MILLER:

Q. 11. State, in brief terms, the principle of the machine shown in the patent, Exhibit A.

Obj.—(Respondents object to any evidence as to any principle of the machine, except as it is confined to a corrugated cylinder
55 operating with movable foundation timbers, as it is admitted that no other claim of the patent sued on except a claim covering such a combination has been infringed by the respondents.)

A. Ore is fed into the hopper and goes by its gravitation to the roller, and by revolving the roller by the drop of the stamp the ore is carried forward and dropped into the apron into the battery.
Q. 12. How are the cylinder and frame mounted?
A. The cylinder is mounted on movable timbers—a frame-work separate and distinct from the battery or any other part of the mill.
Q. 13. Could you take the machine from one battery and move it to another, so as to feed the second battery?
A. Yes, sir.
Q. 14. It has rollers under it, I believe, has it, as is shown in the patent?
A. It (the patent drawing) shows rollers.
Q. 15. What is the object of those rollers?
A. To facilitate the motion; to make it easier to move.

Q. 16. Could it be moved without those rollers?

56 A. Yes; with additional force.

Q. 17. Do you find any feeding cylinder in the model, Exhibit D?

A. Yes, sir.

Q. 18. How is it mounted?

A. Mounted the same as the roller in the model, Exhibit C—substantially the same.

Q. 19. What is the operation of that machine, Exhibit D?

A. The ore flows by gravitation to the cylinder, is carried over its apex into the battery by the motion imparted from the stamp stem.

Q. 20. What is the function of the roller?

A. The function of the roller is to regulate the supply of ore to the battery.

Q. 21. What is the function of the roller in the complainant's machine?

A. For the same purpose—to regulate the supply.

Q. 22. Is there any difference in the construction of the two rollers?

A. No material difference. The only difference is the corrugation in Exhibit C.

Q. 23. Do you or do you not consider those two rollers—the feeding cylinder in the model, Exhibit C, and the feeding cylinder in the model, Exhibit D—mechanical equivalents?

A. Perfectly so.

57 Q. 24. What would be the operation of the complainant's machine described in the patent, Exhibit A, in case of wet, sticky ore being fed into the hopper?

A. In that case the corrugations would fill up and the roller become smooth in a very short time. Feeding with sticky ore the roller would become round a very little ways above the top of the corrugations.

Q. 25. In your judgment as an expert would a machine constructed as described in the patent, Exhibit A, feed ore to a battery?

A. Yes, sir.

Q. 26. Have you read the specifications and drawings of that patent?

A. Yes, sir.

Q. 27. Could you as a mechanic construct an operative machine from those specifications?

A. Yes, sir; I could without difficulty.

Cross-examination of CHARLES W. DUFFY by Mr. WHEATON:

Q. 1. Did you ever see a machine made with a corrugated roller, as shown in the patent, Exhibit A?

A. No, sir; not with a corrugated roller.

58 Q. 2. You never saw one used?

A. No, sir.

Q. 3. Did you ever see a roller of that kind fill up with sticky ore and become round?

A. I have seen ore stick to rollers as smooth as that. In fact I have seen sticky ore fill up even rock-breakers when in constant operation, and they have an open flow below; don't depend on anything to regulate their feed, only the motion of the oscillating jaws, and they sometimes pack and break. I have seen that.

Q. 4. Do you mean to say that you believe, as an expert, that all of those corrugations in that feeding roller shown in the patent, Exhibit A, would fill up so as to make a smooth, round surface and remain so?

A. Yes, sir; in time they would fill right up to the surface. As this roller passes under the bottom of the apron in this machine (Exhibit C) it would smooth it off, and the little high places that would extend up would be packed down in there, and in time it would become perfectly smooth.

Q. 5. How deep would the corrugations be in a machine made as described in the patent, Exhibit A?

59 Obj.—(Objected to by complainant as incompetent, as the patent is the best evidence.)

A. They could be an inch, or an inch and a half, or three inches—just as you would see fit to make them.

Q. 6. Can you tell about how deep they would be if made as shown in the patent?

A. I could not tell without I had the scale of this drawing in the patent.

Q. 7. What is the ordinary diameter of the stamp head or boss B shown in the patent?

A. That depends upon the size of the stamp altogether. They are sometimes six or eight inches. It depends upon the weight of the stamp.

Q. 8. Suppose it was the largest kind of a boss or stamp, what would be its diameter?

A. About eight or nine inches.

Q. 9. Taking that as a basis, please make a measurement and say what the diameter would be of the feed roller, and what would be the depth of the corrugations as shown in the drawing of the patent, Exhibit A.

60 Obj.—(Objected to by complainant as irrelevant and immaterial, as the patent does not state what the depth of the corrugations must be.)

A. The diameter of the roller would be about eight inches and the depth of the corrugations would be about two inches, according to that drawing.

Q. 10. What is the size of the pieces of ore that are ordinarily fed into the batteries in these mining mills?

A. They range from an impalpable powder to three-inch rock.

Q. 11. Suppose in the case of wet, sticky ore those three-inch pieces of rock get into those corrugations, which are only two inches deep—and your two inches in depth seems to me to be too much—

how could they be brought down to a smooth surface even with the top of those corrugations?

A. They could not. They would fall off by gravity when they got over the edge.

Q. 12. Suppose they did not fall off, but some one or more of them still adhered to the sticky mass, on another revolution what would take place?

A. It would lift the apron and pass under; but it would be impossible for a piece of ore that size to get under there. There is nothing adhesive enough to hold a piece of ore as heavy as that.

61 Q. 13. Is there not wet, sticky mud which would hold such ore?

A. Not mud; there are sometimes little clay streaks, but they are never smooth and adhesive enough to hold a piece of ore as large as that.

Q. 14. Then where would you get sticky material enough to hold those corrugations full of ore while they were going entirely round?

A. Sometimes we get slate or soapstone in the mass, and that makes the particles adhere to each other.

Q. 15. This idea of yours is all mere theory, is it not? You have never seen it tried at all, have you?

A. I have never seen a corrugated roller tried, but I have seen machines clog up by wet material.

Q. 16. What clogged in those machines—that is, revolving machines?

A. The clay clogs on the bottom of the feed.

Q. 17. The feed in that case you refer to was a tray, was it not?

A. A tray.

Q. 18. And what was the inclination of the bottom of that tray?

A. About three inches to the foot from a horizontal.

62 Q. 19. Every time the tappet would strike and carry round this feed roller in the machine described in the patent, Exhibit A, it would give it a severe shock, would it not?

A. That would depend on the amount of ore in the battery entirely. If there was a very small amount of ore in the battery the stroke coming on the top of this rod or arm *q*, as marked in the patent, if the tappet struck that very hard it would give the roller only as much turn as the distance the arm *q* would be from the tappet.

Q. 20. Whether the blows were heavy or light, they would always be heavy enough, if they turned the roller, to turn it with a sudden jerk, would they not?

A. The motion would be sudden; yes; but it don't often happen that the ore in the battery gets down so low as to give it a very severe shock, because as the ore comes down this thing begins to feed again.

Q. 21. Every time the stamp strikes it shakes the whole thing, does it not?

A. It only shakes the rod *o* and the arm *q* shown in the patent drawing.

63 Q. 22. Do you mean to say as an expert that there would be sticky stuff enough to fill up the corrugations on that roller and remain fast to it even when the particles hung from the roller vertically when that jar was given to the machine necessary to turn the feed roller, and that still there would not be sticky material enough there to carry round a piece of ore three inches in diameter?

A. In some cases it would occur that they would fill up—yes.

Re-examination of CHARLES W. DUFFY by Mr. MILLER:

Q. 1. What is the object of the apron M shown in the patent, Exhibit A?

A. The apron is to guide the ore from the feeder to the battery.

Q. 2. Could anything that might happen to be in these cavities or pockets of the roller and which extended above them go under that apron M as the cylinder revolves?

64 A. No, sir; I don't see how it could go under the apron M.

Q. 3. What would be the operation of the apron M?

A. The operation of the apron would be to conduct the ore from the feed roller to the battery.

Q. 4. Suppose wet and sticky ore was to be fed into these corrugations, what would be the limit of the amount of ore that would stick in those corrugations and remain there, if any ore would remain and stick there?

A. That circumstances would have to govern; it would depend upon the condition. One of these corrugations might empty in going round there and then fill up again, and all the rest remain full.

Q. 5. I mean what would be the limit of the amount of ore that would remain in any one of these corrugations?

A. Only up to the surface.

Q. 6. Why?

A. Because the apron would scrape it off and the bottom of the hopper would scrape it off again.

65 Q. 7. Would it be possible for any particle which extended above these corrugations to be carried round and come up under the bottom of the hopper?

A. Yes; it is possible to do that; it is possible that it would have force enough to do that.

Q. 8. How would that occur?

A. That might occur from the force of the stamp.

Q. 9. You don't understand. Would it go under the apron M?

A. No; it would go over the top of the apron M.

Q. 10. The apron M is in front of the roller, is it not?

A. It is in front and below the roller; its beginning is at the point K.

Q. 11. Could anything in those corrugations be carried under the apron M?

A. No, sir.

Q. 12. Then how could a piece which projected above the corrugations be carried under the apron M and under the mouth of the hopper L?

A. It could not enter the apron at K and go round.

Q. 13. I understood you to say a few moments ago that it
66 could. That is what I wanted to get at.

A. When I state it could go under the hopper L, I say still it is possible for it to pass under the hopper L if it should become detached from the mass after it had passed under the apron M.

Q. 14. How could it pass under the apron M?

A. It could pass under the apron by being below the surface of the corrugations. Then, if it became detached after passing under the apron, it would be possible for it to pass under the hopper L by force.

Q. 15. Where have you seen wet and sticky ores worked?

A. In Tuolumne county, in this State, and in Yuma county, Arizona. It had become wet from being in a pile.

Q. 16. What do you mean by clayey ores?

A. Where clay streaks are in the ore or on the foot walls.

Q. 17. What would be the operation of the clayey ores?

A. They are always sticky.

Q. 18. Have you ever seen such ores clog or stick to any kind of machines?

67 A. I have seen the rock stick to rock-breakers; that is the first operation before going to the feeders. I have seen them clog up a rock-breaker and cause it to break by packing.

Q. 19. What is the character of the force used in a rock-breaker?

A. It is an eccentric.

Q. 20. I mean with regard to regularity—a suddenness of motion?

A. The motion in a rock-breaker is regular, because the power is supplied from the shaft to a driving pulley on the machine. The regularity of that depends on the motion of the engine; if that is regular the rock-breaker runs regular.

Q. 21. Does it create any jar or shock?

A. Only on its contact with the crushing of the rock there is a shock.

Q. 22. Is the force of the stroke great or small?

A. It is very great.

Q. 23. How does it compare with the force of the stroke of a stamp?

A. It is greater than the stamp?

Q. 24. It pounds the rock?

A. Yes, sir; it crushes the rock.

Q. 25. Crushes it by pounding?

A. No; by compression.

68 Q. 26. These dimensions which you have given in answer to Mr. Wheaton are mere estimates, are they not?

A. Just the proportions of the patent drawing.

Q. 27. How did you arrive at those estimates?

A. Just by comparing the parts of the drawing.

Recross-examination of CHARLES W. DUFFY by Mr. WHEATON:

Q. 1. Mr. Duffy, is there any joint action between the feed cylinder shown in the patent, Exhibit A, and the movable timber H?

Mr. MILLER: I object to that as not cross-examination.

Mr. WHEATON: I will make him my own witness.

Obj.—Mr. MILLER: Then I object, because it is not a proper time for respondents' counsel to put in his own case.

A. No joint action. The timber does not act—only as a support for the roller.

By Mr. WHEATON:

Q. 2. Does it require any invention to move the feed roller
69 shown in the patent, Exhibit A, by the timbers H H there shown or in the mounting of that roller upon those timbers, what any mechanic would know how to do by virtue of his knowledge of his business?

Obj.—(Objected to by complainant as irrelevant and immaterial, inasmuch as the claim of complainant's patent is for a combination and not for separate elements.)

A. Any mechanic would naturally take advantage of anything like that to lessen his work.

Q. 3. Is there displayed anything more than ordinary mechanical knowledge as it existed in and prior to 1873 in mounting the feed roller I upon the timbers H?

Obj.—(The same objection by complainant.)

A. I think not.

Q. 4. In the use of those machines is there any action being performed by the feed cylinder I whenever the timbers H are used for moving the machine around?

A. No, sir.

Q. 5. Then when the movable timbers H are used for the purpose of moving the machine around the feed cylinder I is not at work at all, is it?

A. Not at work at all.

70 Q. 6. There is no joint action between those two devices, is there?

A. No, sir.

Q. 7. Does the feed roller I perform its duties when mounted upon the timbers H just as it would perform them if mounted upon any other kind of a proper foundation?

Obj.—(Objected to as unintelligible, not sufficiently definite, and also as irrelevant and immaterial.)

A. I don't know as I understand the question.

Q. 8. Is there any action of the movable timbers H which is modified or controlled or influenced in any manner or degree by having the feed roller I mounted upon them?

A. Only to steady the machinery they are so mounted.

Q. 9. Is there any action of the movable timbers H which is influenced by the feeding roller I?

A. No; the timbers H are not influenced by the cylinder.

By Mr. MILLER:

Q. 10. When the feed cylinder is at work does it not rest on the timbers H?

71 A. Yes, sir.

Q. 11. When it is moved from place to place does it not rest on the timbers H?

A. Yes, sir.

Q. 12. Is not the object of the timbers to support the feed roller and enable it to be moved with ease?

A. Yes, sir.

(Recess until half past two p. m.)

Deposition of Woodbury.

THURSDAY, *September* 20, 1883—afternoon.

Present: Mr. Miller, complainant's solicitor; Mr. Wheaton, respondents' solicitor.

Examination-in-chief of GEORGE E. WOODBURY on behalf of complainant.

By Mr. MILLER:

Q. 1. Where do you reside, and what is your business?

A. I reside in this city and I am engaged in the manufacture of mining machinery.

Q. 2. How long have you been engaged in that business?

72 A. Four years and a half.

Q. 3. Have you had any experience with ore-feeders for stamp mills?

A. I have.

Q. 4. To what extent?

A. I have run them practically in mills in Tuolumne county, and I have made some inventions of ore-feeders.

Q. 5. When did you first become acquainted with automatic ore-feeders?

A. Three years ago.

Q. 6. Look at the patent, Exhibit A, and the model, Exhibit C. Have you read that patent?

A. Yes, sir.

Q. 7. State briefly by reference to the patent and the model what is the invention described in the patent.

A. It is mounting a feeding cylinder upon movable timbers or frame, for two purposes. The cylinder is for the purpose of feeding rock or ore into the battery, and it is mounted upon a movable frame for the purpose of moving it away from the battery at such time as repairs might be going on to the battery.

Q. 8. When you put ore into the hopper L what is the operation of the machine?

73 A. In consequence of the bottom of the hopper being on an incline the ore, by its own weight, will slide down this

hopper, and there it is confined, to a certain extent, by means of a suitable gate at the end or bottom of the hopper. The cylinder is made to revolve by means of a connection from the cylinder to the tappet, and the ore is fed over the cylinder into the battery in such portions as required.

Q. 9. What is the object of the corrugations or depressions in the feeding cylinder?

A. To better facilitate the movement of the ore.

Q. 10. How would the machine operate if you were to remove the corrugations from the feeding cylinder?

A. It would do practically the same work; but I don't consider it would answer quite as well to have it smooth.

Q. 11. What would be the operation of the machine in case you were feeding wet, sticky, and clayey ores?

—. ——.

By Mr. WHEATON:

Q. 12. Do you know how that would be? Have you ever used them to know how it would work?

74 A. I have never used the corrugated machine; no, sir. So far as that is concerned, I would have to testify on my own judgment.

By Mr. MILLER:

Q. 13. Are you a practical mechanic?

A. Yes, sir. I don't suppose there is a machine of that kind (referring to model, Exhibit C) in operation to-day. I don't know of one.

Q. 14. That is to say, with the corrugations?

A. Yes, sir.

By Mr. WHEATON:

Q. 15. Has there ever been, to your knowledge?

A. Not to my knowledge; no, sir.

By Mr. MILLER:

Q. 16. What would be the operation of the machine in case you were feeding wet, sticky, and clayey ore?

A. In my judgment the pockets or depressions between the corrugations might, to a certain extent, become filled.

Q. 17. What is the character of clayey ore?

A. It is sticky.

Q. 18. What makes it sticky?

A. A mixture of water with the ore containing clay.

75 Q. 19. What would be the operation of the apron M in the machine described in the patent, Exhibit A, in case you were feeding wet and sticky ore?

A. In that case the sticky ore might adhere to the roll, to a certain extent, till it came in contact, perhaps, with the front of this apron.

Q. 20. In such case could the ore ever stick up above the corrugations on the cylinder?

A. Not if the top of the apron was put near to the cylinder, as it would be by proper construction.

Q. 21. What is the purpose of those small rollers appearing underneath the timbers H?

A. To facilitate the movement of the frame.

Q. 22. What is the purpose of the frame?

A. The frame is to hold the component parts of the machine together.

Q. 23. Suppose those rollers were taken away, could it be moved about?

A. It could.

Q. 24. What would be the difference?

A. It would simply require the application of a little more power to move it.

Q. 25. Look at the model, Exhibit D, and state in brief
76 terms what is the principle of that machine?

A. The machine has an inclined hopper, elevated over a feeding cylinder, which is operated by a connection between it and the tappet of the stamp; it also has an apron.

Q. 26. Whence is the power derived that rotates the cylinder?

A. It is derived from the tappet.

Q. 27. What is the operation of that machine, Exhibit D, when you put ore into the hopper?

A. The feeding cylinder is made to revolve, and as the ore is continually working down the hopper the cylinder comes in contact with the ore and feeds the ore from the mouth of the hopper into the battery.

Q. 28. On what is the feeding cylinder mounted in this machine, Exhibit D?

A. It is mounted on a movable frame.

Q. 29. Has it any rollers underneath it?

A. No, sir.

Q. 30. What would be the result of not having rollers underneath it?

A. The practical result is the same as in case of the machines with the rollers.

77 Q. 31. Could a machine constructed after the principal of this model, Exhibit D, be moved about from place to place?

A. Yes, sir.

Q. 32. In your judgment as a mechanical expert, what is the mechanical difference between these two feeding cylinders shown in these two models, Exhibits C and D?

Obj.—(Objected to by respondent until the witness is shown to have used both kinds of cylinders, so that he knows what the difference is.)

A. I find in Exhibit C a feeding cylinder which has corrugations upon it. In Exhibit D I find a feeding cylinder which has no corrugations. In my judgment, up to a certain point both cylinders are the same.

Q. 33. What do you mean "up to a certain point?" Explain that answer.

A. The cylinders in both cases are the same, with the exception of their being an additional improvement of corrugations on the feeding cylinder in Exhibit C. Take those corrugations off and the cylinder would be identically the same.

Q. 34. What purpose does the corrugated cylinder accomplish?

A. It better facilitates the feeding of the ore.

78 Q. 35. What purpose does the other cylinder accomplish?

A. It feeds the ore practically the same as the corrugated cylinder, but not as well.

Q. 36. What is the difference in the result accomplished by the two, then?

A. In my judgment, the one with the corrugated cylinder would feed wet and sticky ore better than the ore which has no corrugations upon it.

Q. 37. Is the difference in the result accomplished one of kind or one of degree?

A. In my judgment, it is in the result.

Q. 38. In your judgment as a mechanical expert, is or is not the smooth cylinder a mechanical equivalent to the other?

A. It is practically identically the same.

Q. 39. Do you know who manufactures machines like the model, Exhibit D?

A. Yes, sir.

Q. 40. Who?

A. The Miners' foundry—Golden State and Miners' foundry.

Q. 41. They are known to the trade generally as the Miners' foundry, are they not?

A. Yes.

79 Q. 42. Did you ever see one of those machines in operation?

A. Yes, sir.

Q. 43. What was the character of their operation?

A. They feed ore—especially dry ore—very well.

Q. 44. How would they feed wet ore?

A. Not well.

Q. 45. Why?

A. In consequence of the cylinder being smooth it would have a tendency to slip within the ore—that is to say, when the ore is wet and sticky the cylinder would revolve without taking any ore along with it; consequently it would clog more or less at the foot of the hopper.

Q. 46. Have you seen any of them on exhibition here?

A. Yes, sir; at the mechanic-' fair now in progress here.

Cross-examination of GEORGE E. WOODBURY by Mr. WHEATON:

Q. 1. What is the difference in the action and operation of the corrugated cylinder on account of being placed on movable

80 timbers H as compared with what its action and operation

would be if the timbers H were bolted solid to the floor of the mill?

A. No difference, in practical operation.

Q. 2. Then is there any joint action performed by the movable quality of the timbers and the cylinder?

Obj.—(Objected to by complainant as incompetent, irrelevant, and immaterial, inasmuch as complainant does not claim the separate parts of the patented machine in combination.)

A. No, sir.

Q. 3. Do the timbers H act at all while the machine is feeding ore to the mill?

Obj.—(The same objections by complainant.)

A. No, sir; they only support the parts of the machine.

Q. 4. Does the feeding cylinder act in feeding ore or otherwise while they are using the movable feature of the machine to move it from place to place?

Obj.—(The same objections by complainant.)

A. No, sir.

Q. 5. Then is there any combined action whatever between the feeding cylinder I and the movable timbers H H?

A. No, sir.

81 Q. 6. Have you ever known or seen used a machine with corrugated rollers, as described in the patent, Exhibit A?

A. No, sir.

Q. 7. I understand you to say that as to the defendants' machine you have seen them operate where the ore was wet and sticky?

A. Yes, sir.

Q. 8. And the difficulty with it in such cases was that the cylinder would roll round inside of the ore and not carry the ore with it?

A. Yes, sir.

Q. 9. If the ore was sticky why wouldn't the cylinder carry it all the more readily on account of its being sticky?

A. Because the cylinder is smooth.

Q. 10. Would not sticky ore stick to a smooth cylinder more than dry ore would that was not sticky at all?

A. No, sir. The reason it don't feed the sticky ore is because the sticky ore is a sort of a conglomerate mass, and the cylinder having a smooth surface it slips under the mass without disturbing it enough to remove it, whereas if it was dry ore the least movement would disturb the ore so as to rattle or move it down over the cylinder.

By Mr. MILLER:

82 Q. 11. Would dry ore stick to the cylinder?

A. No, sir.

By Mr. WHEATON:

Q. 12. Would that sticky ore if placed in a machine with a corrugated cylinder, as described in Exhibit A, adhere with the cylinder so as to be carried around with it?

A. It would come in contact with the corrugations so as to be carried around with it. In some cases, if it was very soft, pliable, sticky, it might fill the corrugations, and then it would practically be a smooth cylinder.

Q. 13. As a matter of fact, you do not know anything about how a corrugated cylinder would act, do you?

A. I have never seen one; I could only state what my judgment would be.

By Mr. MILLER:

Q. 14. You know how sticky ore acts, don't you?

A. I know how sticky ore acts.

By Mr. WHEATON:

Q. 15. In every instance where you have seen sticky ore used in a machine with a cylinder the cylinder revolved without taking the ore with it, did it not?

A. Yes; that is the difficulty with a smooth cylinder.

83 Re-examination of GEORGE E. WOODBURY by Mr. MILLER:

Q. 1. What is the final and ultimate result accomplished by the complainant's machine when it is put in operation?

A. It is practically feeding the ore into a stamp battery.

Q. 2. What is the immediate instrument that causes that result?

A. The revolving cylinder.

Q. 3. Is it or is it not necessary, then, that that revolving cylinder should have some support?

A. It is necessary.

Q. 4. Is it supported during the operation of feeding the ore to the battery?

A. It is.

Q. 5. Could it feed the ore to the battery without being supported in some way?

A. No, sir.

Q. 6. Then does not the support assist in the final and ultimate result accomplished by the machine, in that sense?

A. That is a part of the machine. I presume it does.

84 Q. 7. Could the cylinder be suspended in mid air and feed to a battery?

A. No, sir.

By Mr. WHEATON:

Q. 8. Above the timbers H, shown in the patent, Exhibit A, there is a bracket or standard which supports that revolving cylinder, is there not?

Obj.—(Objected to by complainant as not cross-examination.)

A. Yes, sir.

Q. 9. Suppose that standard ran right down to the floor and was bolted to it, would not the action of the cylinder be exactly the same as it would be with the timbers H H there?

A. Yes, sir.

(By agreement of counsel continued subject to notice.)

THURSDAY, *October* 25, 1883.

Attended at the request of Mr. Miller, complainant's solicitor. After the hour appointed, received from Mr. Miller a message requesting a continuance to Saturday, 27th instant, at 10 o'clock a. m.; continued accordingly.

SATURDAY, *October* 27, 1883.

Present: Mr. Wheaton, respondent's solicitor.

In accordance with a request sent by Mr. Miller, through his clerk, a further continuance was taken to Monday, 29th instant, at two o'clock p. m.

85 MONDAY, *October* 29*th*, 1883.

Present: Mr. Miller, complainant's solicitor.

(No witness attended. No continuance to a future day was requested or made.)

Deposition of James A. Mars.

THURSDAY, *February* 14*th*, 1884.

Present: Mr. Miller, complainant's solicitor; Mr. Wheaton, respondents' solicitor.

Examination-in-chief of JAMES A. MARS on behalf of complainant.

By Mr. MILLER:

Q. 1. State your name and your place of residence.

A. My name is James A. Mars and I reside in this city.

Q. 2. How long have you resided here?

A. Since 1855.

Q. 3. What is your business?

A. My present business is that of a mining agent.

Q. 4. How long have you been in that business?

86 A. Fourteen or fifteen years; not, however, confined to that particular business. My business was that of an assayer up to within the last six or seven years; I combined that and my mining agency as well.

Q. 5. Are you the James A. Mars mentioned in the letters patent, Exhibit A, now before you?

A. Yes, sir.

Q. 6. In what business were you engaged about the time that the patent was granted?

A. I was then carrying on an assay office, in connection with my mining business in this city and county, at 512 California street.

Q. 7. Are you acquainted with Mr. Cusenbary, mentioned in that patent, Exhibit A?

A. Yes, sir.

Q. 8. What was his business at that time, if you know?

A. He was a miner.

Q. 9. Do you know where he is now?

A. I think that he is in the State of Missouri, near Kansas City.

Q. 10. Do you remember the circumstances attending the making of that invention by you and Mr. Cusenbary?

A. Yes, sir.

87 Q. 11. What did you do after the invention was made?

A. Do you mean after we received the patent for the invention?

Q. 12. Either before or about the time that the patent was granted. What did you do with regard to the invention that you made?

A. Mr. Cusenbary went East at that time—went home to his place, in Missouri—and I made some effort here to make the invention useful to us, as well as valuable. I built one machine to demonstrate whether it would work as we designed that it should.

Q. 13. Where did you build that machine?

A. Here in the city at one of the founderiers.

Q. 14. What size?

A. We built it of a working size, sir, full size. I think it was three feet or more about the face of the cylinder or barrel that the hopper fed on.

Q. 15. Was it built according to the specification in the patent?

A. I think it was, as near as I can remember.

Q. 16. What did you do with it after that time?

88 A. It remained in the foundry there. I — that time was somewhat embarrassed in my own business affairs, and I did not give much attention to it, and I wrote on to Mr. Cusenbary that if he came here and gave his attention to it I thought something could be done with it if it was pushed. In answer to that he said that he intended to go to the Vulture mine, in Arizona, where he used to be superintendent, and he did not come here for some considerable time after that, and I did not push it myself, because I did not have the means.

Q. 17. Did you test the invention?

A. I tested it as far as I could here and it worked satisfactorily to every mining man that I showed it to.

Q. 18. How did you test it?

A. We first ran coal through it just to see how the hopper would feed and how it would discharge from the cylinder or barrel that we had in front of the hopper by the use of the tappet to give the cylinder a part revolution.

Q. 19. What did you do after that?

A. We tested it with rock quartz, and, I suppose, as many as a hundred miners or persons interested in the mining business —. I had a man there—I have forgotten his name (it may occur to
89 me before I get through with my testimony, however)—who was there at the foundry at the time exhibiting this machine. He was a very active man, knew a great many mining people, and made it his special business to call the attention of quartz miners and those who would use such a machine to it. I went down there myself with different parties.

Q. 20. What were you saying about as many as a hundred miners?

A. I say that at least a hundred, to my knowledge, had examined that machine there and pronounced it——

Obj.—Mr. WHEATON: I object to your stating what they pronounced it.

The WITNESS: I could only tell by exhibiting a machine whether it would pay me to go on with it myself, and we had this machine made to test it—to see what could be done with it.

By Mr. MILLER:

Q. 21. What was the result of that test you made with that machine?

A. The result was satisfactory, so far as I was concerned, to convince me that it was a useful machine.

Q. 22. Was it satisfactory so far as the others were concerned to whom you exhibited it?

Obj.—(Objected to by respondent as incompetent.)

90 A. Yes, sir.

Q. 23. Where was Mr. Cusenbary at that time?

A. He was then in Missouri or in Texas; I am not sure which. I think he took a contract on a railroad in Texas.

Q. 24. Did he come back to California after that?

A. Not for two years, I think; might have been longer; I don't remember now, but it was quite a long time before he returned.

Q. 25. What did you and he do with this invention and with this patent after it was issued?

A. We done nothing with it; we sold out the patent.

Q. 26. Do you remember when you sold it?

A. I could not remember the date, sir; it has been, I think, nearly five years ago.

Q. 27. Just state why you sold it.

A. I sold it because I wanted money; that is why I sold it; not that I did not think it a useful machine, but I didn't have the means to push it, and it takes money to push any kind of a patent. You have got to build machines and introduce them, and I did not have money to do it.

"Ex. E."—(Complainant puts in evidence a circular of the
91 respondent corporation showing a cut of the ore-feeders made and sold by said corporation, marked Complainant's Exhibit E.)

Stip'n.—(Respondent admits that Exhibit E is a circular published and circulated by respondents, reserving, however, the right to withdraw this admission if it is found that the facts covered by it are not true.)

Q. 28. Look at the model, Exhibit C, before you, and state what that is.

A. That looks like the machine that we invented some.

Q. 29. Do you mean the machine described in this patent, Exhibit A?

A. That looks like it; yes. I am not a machinist nor much of an inventor, but this cylinder having cleats or buckets across it, with this clutch wheel, is something like the machine that we had.

Q. 30. What is the function of that cylinder?

A. To discharge quartz from the hopper in a regular manner.

Q. 31. If you fill the hopper with ore what could be the operation of it, assuming that this ratchet wheel is connected with the tappet of the stamp?

92 A. Whenever the ore under the battery was low enough for the tappet to strike it would have a tendency to throw this wheel part of the way round. It would throw the cylinder so far round as to discharge into the battery a portion of the ore in the hopper resting upon the cylinder.

Q. 32. In a word, what is the function of the roller?

A. It is what I should call a feed cylinder. It is nothing more or less than a feed cylinder.

Q. 33. Suppose that you removed the ribs from the feeding cylinder, how would the machine work then?

Obj.—Mr. WHEATON: I object to the witness being examined as an expert, unless he is shown to be one.

A. I do not claim to be an expert, sir. I do not claim to be a machinist or an inventor. My position in this matter as one of the patentees was the financial part of it, and at the same time when the machine was submitted to me in its crude from the suggestions that I made to Mr. Cusenbary of having this change made—first he had a cylinder without anything to hold the quartz back, and I suggested if cleats were there it would prevent the discharge of

93 loose matter—slimy ore—from passing over too rapidly, as it might fall over too fast, and if the cleats were put there it might feed the battery in a more regular and uniform manner than a plain barrel.

Cross-examination of JAMES A. MARS by Mr. WHEATON:

Q. 1. Did you ever use those ore-feeders in mills?

A. No, sir.

Q. 2. Then, if I understand you right, the part of the invention which you made was having the ribs put on the face of the feed cylinder?

Obj.—(Objected to by complainant as incompetent, irrelevant, and immaterial.)

A. Yes, sir.

Q. 3. Did you invent any other part of the machine?

Obj.—(The same objection by complainant.)

A. No, sir.

Q. 4. Looking at defendants' model, Exhibit D, you see that there are no ribs on the feed cylinder?

A. I see that there are not.

Q. 5. Then do you see anything in the defendants' model which you helped to invent?

94 A. As far as the invention is concerned, the invention is more Mr. Cusenbary's than it is mine. He is really the inventor of the machine, and, as I stated before, my part of the premises was the financial part of it—obtaining the patent for a certain interest in it—and the suggestion that I made in relation to the cleats on that cylinder was the only part that I had in that invention. We consulted together before we made the application for the patent, and I made a number of drawings, crude drawings, before we could get the idea to the model-maker who made the model.

Q. 6. The question is now whether you see anything in this model, Exhibit D, which you personally invented or helped to invent, there being none of those ribs upon the feed roller?

A. All that I claim to have invented on this machine (Exhibit C) is the cleats or buckets on the cylinder, and there is nothing in Exhibit D like them.

Q. 7. Then the question is easily answered.

A. I say no. That answer, however, should be modified. If I were shown that machine (Exhibit D) I should claim that it was the same invention imperfect; that this was the same ma-

95 chine that we invented without the cleats or buckets on the cylinder.

By Mr. MILLER:

Q. 8. Is that the only material difference that you find in the two machines, that one of them has cleats or buckets on the cylinder and the other has not?

A. That is the only difference I can see, on a casual observation.

By Mr. WHEATON:

Q. 9. Do you see anything in the model, Exhibit D, which you personally invented or helped to invent?

A. My answer to that is, No.

Q. 10. Do you know why none of your machines were ever made for any of the numerous miners who examined it?

A. Yes; I can give you an answer to that very plainly.

Q. 11. What was the reason?

A. The reason was the miners, in examining a piece of machinery—I have never yet found one, even myself, when I was examining machinery where I was going to purchase, that I was willing to make a test of building a machine and testing it practically in a mill at my own expense. That is why that machine was never used. We did not manufacture them ourselves from sheer

96 inability on our part, and Mr. Cusenbary left it to me entirely, and he did not return here for two years, I think. I think it was at least two years before he came here. He was engaged in another business; had got out of mining at that time.

Q. 12. Why didn't you have some of them take the machine that you had constructed to have that placed in the mill and used?

A. That was simply built to exhibit the invention. I would have had to go to the expense of building another one, and building one machine alone would cost double what it would cost to go to work and have them built by contract—a dozen or more. Building them individually it would cost from 50 to 75 or a hundred dollars.

Q. 13. What price did you get for that patent when you and Mr. Cusenbary sold it?

Obj.—(Objected to by complainant as immaterial.)

A. I could not tell you, sir.

Q. 14. You know pretty nearly, do you not?

A. I don't know what Mr. Cusenbary did get for his. I never did learn.

Q. 15. What did you get for your interest?

Obj.—(Objected to by complainant as immaterial, and also on the ground that evidence of the price which the witness may
97 have received for his half-interest is not evidence of what the entire patent sold for.

A. I have personal reason for objecting to stating that.

Q. 16. Did you get any more than a nominal amount?

A. I got a valuable consideration—what I considered to be a valuable consideration.

Complainant rests.

98 *Deposition of Crandall.*

WEDNESDAY, *March 12th*, 1884.

Present: Mr. Miller, solicitor for complainant; Mr. Wheaton, solicitor for respondent.

Examination-in-chief of ORMAND CRANDALL on behalf of respondent.

By Mr. WHEATON:

Q. 1. Please state your name, age, place of residence, and occupation.

A. My name is Ormand Crandall; I am sixty-seven years old; I live at the American Exchange Hotel, in this city, and I am a millwright and engineer.

Q. 2. Are you familiar with the roller ore-feeders which are made and sold by the Gold and Miners' Iron Works of which Exhibit D is a model?

A. Yes, sir; I am acquainted with them; have put up some of them; made some of them, and seen them work in mills.

99 Q. 3. To what extent have you worked them or seen them work in practical operation in feeding ore in mining mills?

A. I have never seen but four of them in actual operation. That was at the Bunker Hill mill, in Amador county. I saw one other that was similar to it at work where I saw these, at the Keystone mill. It had a wooden roller; it was similar to this (Exhibit D).

I put up four of these in the Bunker Hill mill and saw them at work there for several months.

Q. 4. How did they work at that mine?

A. They worked well—worked very well.

Q. 5. Are you familiar with the working of the ore-feeders which have been manufactured and sold for the last ten years by Mr. Hendy?

Obj.—(Objected to by complainant as immaterial.)

A. I am familiar with the feeder that is called the Challenge feeder; I have put them up and I have seen them work in mills.

Q. 6. Are you familiar with the feeder known as the Tullock ore-feeder?

100 Obj.—(Objected to by complainant as irrelevant and immaterial.)

A. I have not seen them work in a mill. I have made a great many of them for Mr. Tullock and for the Pacific Iron works.

Q. 7. How does the working of the roller feeders at the Bunker Hill mill compare with the working of the Challenge ore-feeder which you have seen work?

A. The roller feeders done better work than the Challenge did—fed more even and regularly the different kinds of ore. There was two of the Challenge feeders working in the Bunker Hill mill, and there was four or six of these like Exhibit D working there.

Q. 8. In what respect did the roller feeders work better?

A. They fed more even and regular, because on the Challenge feeder the ore, if it was damp and muddy—dirty muddy ore they call it—it would stick and pile up on the wing or flange at the side that stops the ore and guides it into the mill. Muddy ore would pile up on that, and after quite a mass had accumulated it would go into the mortar altogether. Free rock ore without
101 any mud in it would feed regular. The roller feeder did feed regular all classes of ore—wet and dry, muddy or clear, or anything else. It fed regularly, so far as I saw it, and I heard no complaint. All the men about the mill were very much pleased with it and thought it worked much better than the Challenge did.

Q. 9. To what extent is muddy ore usually encountered in the working of mining mills?

A. There is a good deal more in some than there is in others. Ore that is in a slate formation generally has more what they call muddy or dirty ore than when it is taken from a granite formation or something of that kind. The mill men call it sticky ore.

Q. 10. What effect would it have upon the rollers for feeding ore if you were to put longitudinal slips along the face of the rollers, as is shown in this Exhibit C?

A. I should think in working upon what they call muddy ore it would be apt to lodge and clog in these spaces between the strips and liable for pieces of ore to stick in that and catch in going
102 around. I don't think it would feed as regularly as this (model, Exhibit D)—a smooth roller with a scraper or front

piece on it. That scraper is worked close to the cylinder and keeps everything off of the roller and keeps it perfectly clean, so that it can keep rolling. With this one (model, Exhibit C) I should think the ore would lodge in there, more or less, and it would be liable to catch pieces of ore and hold them until it went clear around and either stop it or damage the machine. Something of that kind, I should think, would occur. I have never seen one of them at work, but that would be my opinion of the effect it would have.

Q. 11. By the scraper do you mean this metallic flap that turns up against the roller, Exhibit D?

A. Yes, sir. In all that I have made and seen made this scraper was made stationary instead of being made to turn down out of the way as this does on the model, Exhibit D, and is made to work close against the roller and cut off whatever might stick to the roller. That is the way those that I have seen worked.

Q. 12. Was that scraper a necessary device in the working of those ore-feeders?

103 A. I think it is. I think it is very necessary.

Q. 13. Could that scraper be made to work unless it was upon a smooth surface?

A. No; I don't think it would work well unless it was upon a smooth surface. It would not upon this (roller Exhibit C), but it would catch on those stripes. I think that scraper on Exhibit D is very essential for the steady working of the machine.

Q. 14. Did the ore stick so much to the rollers that the scraper was kept constantly employed in cleaning the rollers in those ore-feeders that you refer to?

A. In feeding ore that had much mud in it, it was constantly in use, but in the ore that there was no mud in, the clean rock, it would feed very regular without that scraper, because it would not stick to the roller; but whenever there would be any mud in it parts of it would stick to the roller and would come against the scraper and be scraped off. I watched it very closely because it was the first I had seen at that time, and I wanted to see if there could be any improvements on it or anything of that kind. I done
104 it on my own notion. I found that the ore that was muddy would stick to the roller until it got to the edge of the scraper and then it would come off and go into the battery. I noticed the same kind of ore working with the Challenge feeder would pile up against the guide wing and stick there until it got quite a large pile of it and then go into the battery in quite a large mass—quite a handful of it.

Q. 15. Suppose that a scraper were set near the face of the roller in Exhibit C, just far enough out to clear the longitudinal metal strips, and the sticky mud and rock which is mixed with the ore should come around in pieces of the usual size, what would occur?

A. If it come over with some mud in there or sticky ore, with pieces of ore mixed with it, and this apron or scraper should be set so as to just clear these, and a piece of ore, should a part of it stick and a part of it be under the scraper, I should think the metal strip would come against the piece of rock and stop the roller—stop the

feeding entirely or break something. That would be my opinion of what would occur.

105 Q. 16. In common use would ore inevitably come round in that way that you have just described?

A. I should judge that it would, even if there was no soft mud in it to hold the ore. I don't think that a scraper could be set any way but that pieces of ore would be in some one of these recesses and a part of it stick out, and that would catch on the edge of the scraper; couldn't avoid it, and the roller moving would fetch it against the edge of the scraper; couldn't be avoided as I see.

Q. 17. State whether or not in these ore-feeders it is necessary to have a gate in front?

A. It is necessary to have a gate in this one (Exhibit D) in order to *guage* the amount of rock that you want to go into the battery, because if there was no gate some kinds of rock would *would* go in a good deal faster, say, for instance, dry, hard rock that there is no moisture or dirt amongst. Such rock would go in faster than ore which was half of it soft dirt or mud. That would not go in as fast as dry rock would, and it is necessary to have a gate to *guage* it according to the quantity of rock that you are putting through.

106 Q. 18. Would it be just as necessary to have a gate in an ore-feeder made like Exhibit C, with chambers in the roller, provided that such an ore-feeder would work at all?

A. From the shape of the hopper (in Exhibit C), with a stationary opening large enough to let through any kind of rock, on account of the apron at the bottom of the hopper being more level. I shouldn't think it would be as necessary to have a gate in that as it would in this (Exhibit D). This (Exhibit D) I don't think would work at all without a gate. This one (Exhibit C) I think might: but probably a gate would be better about regulating the ore, even in this one (Exhibit C), if it would work at all.

Cross-examination of ORMAND CRANDALL by Mr. MILLER:

Q. 1. How many ore-feeders were working in the Bunker Hill mine?

A. There were eight feeders altogether.

107 Q. 2. How many of them are roller feeders?

A. I couldn't say whether there were four or six; I forget; there is either four or six.

Q. 3. What are the others?

A. The others are Challenge feeders, with the horizontal disc.

Q. 4. Were they working there along with the roller feeders when you were there?

A. Yes, sir; they were working before the roller feeders were there, and then they were working afterwards.

Q. 5. Are they working there now?

A. I have not been there for a couple of years. I suppose they are working there now. The last I heard of it the superintendent, Mr. Crocker—I believe that is his name—he was down here, and I

was asking him about how the mill was running and he said they were running—I think he told me they were running thirty stamps; and I asked him how the roller feeders worked and he said they worked very nicely indeed; worked better than the Challenge feeders did.

108 Q. 6. Did they take out the Challenge feeder?

A. Not while I was there, they didn't.

Q. 7. When were you there?

A. It was either two or three years ago; I could tell by looking at my books. I built the mill for them and put in the feeders.

Q. 8. How long had the roller feeders been working there when you were there last?

A. I think two of them had been working four months, as near as I can recollect.

Q. 9. How long had the Challenge feeders been working?

A. I don't know. They were at work when I went there, but how long they had been at work before I don't know. When I went there to work there was ten stamps working and they were working two of the Challenge feeders, but how long they had been there I don't know.

Q. 10. Were they working the Challenge feeders and the roller feeders at the same time?

109 A. After I got the new mill made then I put in the roller feeders in the new part of it and they kept the Challenge feeders at work and worked the roller feeders at the same time.

Q. 11. Did you build the roller feeders for them?

A. Not those that were put in there, I didn't.

Q. 12. What roller feeders did you build?

A. I built some here in the city after that. I don't know where they went. I built six of them.

Q. 13. Where did you build those feeders?

A. At the defendants' works—the Miners' foundry.

Q. 14. Are you connected with the Miners' foundry in any way?

A. No, sir; no connection; only I go there to get machinery once in a while. I build them for the Miners' foundry, and they sold them to some mining company.

Q. 15. How many roller feeders did you build in all?

A. Six.

Q. 16. What is the character of the ore at the Bunker Hill mine?

110 A. Some of it is hard ore, and a good deal of it is what we call soft, muddy ore. One side of the mine is a slate formation, or something like that. There is a good deal of slate, clay, and mud—what they call muddy ore—coming from that; a good deal of it is of that character.

Q. 17. Would not muddy ore stick to a smooth roller and the roller turn around?

A. I think it would if it was not scraped off, and I will tell you why I think so. I watched these feeders when they were put in and while they were at work, and I noticed that the ore as it came from the hopper would stick on the roller until it came to the edge

of the scraper, and that would take it off and take it right to the mortar. If this scraper had not been there I think it would have taken it right around and probably clogged on the back side.

Q. 18. Does not a roller feeder clog with wet ore?

A. I have never seen it clog and never have heard of its clogging.

111 Q. 19. Then the scraper prevents it from clogging?

A. Yes; in my opinion that is the main thing that keeps the ore from sticking to the roller and clogging.

Q. 20. Now look at this feeder, Exhibit C. If you were feeding wet and sticky ore through that feeder would it not fill up those cavities between the strips on the roller?

A. I think it would. I think it would stick in those cavities, the wet, sticky ore, a portion of it.

Q. 21. Then the roller there would become comparatively a smooth roller, would it not, to a certain extent?

A. It would. If there were a piece of rock got in there I think it would stick out further than these projections. It would then come around and finally clog solid in the back where the roller comes up against the hopper.

Q. 22. That is, the cavities would fill up to the top of the projections?

A. Yes, sir; and more than to the top. It would keep sticking on a little at a time, and finally there would be pieces of rocks that would come in that would stick in the muddy ore and

112 stick out perhaps an inch or an inch and a half, according to the size of them, and they would eventually come around and clog here at the back under the hopper so that the roller would not work at all; that would be my opinion.

Q. 23. It would do that way if there was no scraper, would it not?

A. Yes, sir.

Q. 24. Suppose you take the scraper off of Exhibit D and put it onto Exhibit C, would that act as a scraper on Exhibit C?

A. In that case there would be pieces of rock that would come along and stick in the muddy ore that was stuck on the surface of the roller, and part of such pieces would be in the cavity and part of them out, and they would come over and catch the edge of the scraper and stop the roller or break something. I don't think it would work at all.

Q. 25. Wouldn't that be the case with this machine, Exhibit D?

A. No, sir.

Q. 26. Why not?

A. Because the surface of the roller is smooth all the time

113 and has a smooth surface for the scraper to act against.

Q. 27. Is the scraper in Exhibit C put up flush against the roller?

A. Yes, sir; right against it.

Q. 28. There is no space at all between them?

A. No space at all between them on those that I built and those that I have seen built. It works right against the roller—right solid.

They are fitted to be as perfect a fit as we can make, and the edge is a little sharpened.

Q. 29. If in Exhibit C you put the scraper up against the partitions on the cylinder why would it not act in the same way as a smooth cylinder in regard to scraping the ore off?

A. Because there is a portion of it below where the ore catches. It would come in contact with the scraper and a large piece of ore would catch on the edge of the scraper.

Q. 30. Suppose you were feeding very fine ore—an impalpable powder—would that objection occur?

A. No, if there was no fine pieces in it. A fine powder, then
114 it would go through, of course.

Q. 31. Suppose that the ore were ground to very small particles, how would it be then?

A. If it was fine enough so that there is no pieces that would stick out beyond the top of the projections it would possibly pass through; but then I should think there would be some pieces that might come in and catch against the edge of the scraper and stop the roller right there. Pieces even as small as hazel nuts might catch there and stop it, while on this kind (referring to Exhibit D) it wouldn't catch.

Q. 32. Suppose you were to take these projections off the cylinder in Exhibit C, how would it operate then?

A. It would be a smooth roller.

Q. 33. And it would work, would it?

A. It would work if there was a scraper there. I don't think one with a bottom hopper like this (in Exhibit C) would work as well as if the back of the hopper came on a direct line with the bottom of the hopper. Especially with muddy ore it would work irreg-
115 ularly. Some part of the ore would come down in chunks.

Q. 34. How big a piece of ore would it take to cause the machine to stop, do you think?

A. It would be according to the depth of the projections, some. A piece an inch square might come in such a way that it would stop it.

Q. 35. Would it have to come into a particular position?

A. Not in a particular position, but, for instance, say one of those cavities between the partitions are an inch and a half deep and that is filled nearly full of mud or wet ore, then if some coarser pieces came on through, if they were not more than half an inch, they might come in such a position that they would catch all along the face of the roller. It would be very likely to catch almost any shape or size of pieces of ore; that would be my opinion. I have never seen one work.

Q. 36. That part that the scraper caught on would be thrown off into the battery?

A. If it didn't catch, probably it would.

116 Q. 37. That part that was left on would go under the scraper?

A. Yes, sir.

Q. 38. Then, after it got down under the scraper, it would fall down by gravitation, would it not?

A. If it was a softish clay or dirt, such as frequently comes in the mines, it would stay in there.

Q. 39. Suppose it was a rock?

A. If it was a rock, unless the mud held it there, it would fall off. It would be very apt to be held if it was crowded in. It might in such a way that the scraper would catch on the outer edge of it—crowd it in—and still it would go by; then it would stay there and go round; then coming round again another piece might stick on there and stop the machine.

Q. 40. Would the contact of the scraper loosen it so that when it passed under the scraper it would fall down by gravitation?

A. No; I don't think it would necessarily. If it struck the scraper and was perfectly free and was far enough away from one of the projections to go clear it would probably drop down;
117 those pieces of rock come in almost every position you can imagine.

Q. 41. Then the deeper these projections were the greater would be the objection that you state?

A. Yes, sir.

Q. 42. Then if the projections were of little depth the difficulties would be in proportion to the height of the projections?

A. In a measure; but even if they were only half an inch they would be likely to catch and hold the muddy ore, and that would catch the rock and hold it, so that it would be likely to catch on the scraper.

Q. 43. Suppose that in a working machine the projections were not more than a quarter of an inch high, would these objections occur to any material extent?

A. There wouldn't be so much objection to it, but still there would be an objection, because there would be a chance for it to, and it would be very likely to, catch in even a quarter of an inch. Smaller pieces would be liable to catch. The scraper on that account would be a detriment to it, because I think it would be liable to stop almost anywhere. It might stop two or three times in going around.
118 It wouldn't take so much to fill up a shallow recess there as it would a deep one, of course.

Q. 44. This testimony which you have given is a matter of theory with you, is it not?

A. Yes, sir—that is, about the cylinder with the projections on it. I never saw one of those.

Q. 45. It is only the wet ore that this roller, Exhibit C, is objectionable with?

A. Yes, sir.

Q. 46. Then for wet ore you consider a machine made after the model, Exhibit D, an improvement on one made after Exhibit C?

A. If you call that (Exhibit D) the same machine that would be a great improvement.

Q. 47. Would this smooth roller in Exhibit D feed dry ore any better than this corrugated roller in Exhibit C?

A. I don't know—yes; I think it would; because in this (Exhibit C) it would go in masses, and there would be places where it would have to turn quite a distance before it would feed, and then it would feed whatever there was in the recess, and this one (Exhibit
119 D) feeds every time; that it makes a motion to the machine. Even with the pieces of ore I should think it would feed much steadier than this (Exhibit C) would.

Q. 48. Is that not due to this friction clutch on Exhibit D instead of the pawl and ratchet on Exhibit C?

A. I should consider the friction clutch better, because there is no lost motion. In this (pawl and ratchet on Exhibit C) there is sometimes lost motion on account of the teeth on the ratchet; and these cavities (in the cylinder Exhibit C) I should think would make it feed not as steady as the smooth roller.

Q. 49. Suppose you put a friction clutch on this machine, Exhibit C, instead of a ratchet, would not this feed dry ore as well as the smooth cylinder?

A. It would with the exception that, this ore being in pockets or recesses, it would carry it further before it would discharge, and it would discharge it, as you might say intermittently, and not as regularly as this (Exhibit D).

Q. 50. Would not the roller on Exhibit C in such a case discharge the amount in each pocket at each time the roller was moved?

120 A. No; not each time. Sometimes it would not go more than a quarter of an inch; sometimes it would go probably two inches. Two inches is about the largest throw that it has where it has a full stroke; when, for instance, the tappet is set and the rock is pretty much all out from under the stamp, no rock for it to strike on, it would throw it further than when there is a portion of the rock under the stamp and it don't get a full stroke. In this (Exhibit C) the under edge of the recess would hold the ore from discharging until it got into a certain position and it would all discharge at once, and so on for the next one. It would not discharge at every stroke the same as a plain roller would if it don't move but a quarter of an inch; whatever is on the roller that quarter of an inch is discharged; that is all that is required under the stamp at that time. The next time there will be more required under the stamp, and if there is the next stroke may move it an inch or an inch and a quarter, and whatever there is there is discharged under the stamp, and so on all the time continually. In this (Exhibit C) some of the strokes would not discharge any and some would dis-
121 charge more; that would be my opinion of it.

Re-examination of ORMAND CRANDALL by Mr. WHEATON:

Q. 1. What is the diameter of the smooth rollers which are used on these machines?

A. I could not tell you certainly, but as near as I can recollect now I should judge somewhere near ten inches in diameter.

Q. 2. What sized pieces of ore usually pass through these ore-feeders to the stamps?

A. Where I have seen them work they pass from small sand like to about two inches or two and a quarter. Two inches and a quarter is about as much as they calculate to get through.

Q. 3. That is, pieces of ore two inches and a quarter through?

A. Two inches and a quarter square or two inches and a quarter the flattest way. I have seen them three or four inches long and two or two and a quarter thick.

Mr. MILLER:

122 Q. 4. Is there more muddy ore than dry ore fed into the batteries in mills in the country?

A. No; I don't think there is. As far as I am acquainted with mills I should judge there is more what they call clean rock than what they call muddy ore. Even clean rock, if it is wet and damp, there may be a portion of it that will stick onto the roller.

Stip'n.—(By agreement of counsel the reading of the above depositions to the witnesses and the signing thereof by them, respectively, are waived.)

(Testimony closed.)

123 *Certificate to Depositions.*

I certify that, previous to giving his testimony, each of the witnesses in the foregoing depositions named was by me duly sworn to tell the truth, the whole truth, and nothing but the truth in the cause in the caption of said depositions entitled; that said depositions were taken down by me in the presence of the solicitors for the respective parties to said cause, and that the reading of said depositions to the witnesses and the signing thereof by them, respectively, were, by agreement of said solicitors, waived, and I have retained said depositions for the purpose of delivering them with my own hand to the court for which they were taken.

In testimony whereof I have hereunto set my hand this 18th day of March, 1884.

S. C. HOUGHTON,
Examiner, &c.

(Endorsed:) Received and filed March 18, 1884. L. S. B. Sawyer, clerk, by F. D. Moncton, deputy clerk.

124 EXHIBIT A.

2–175.

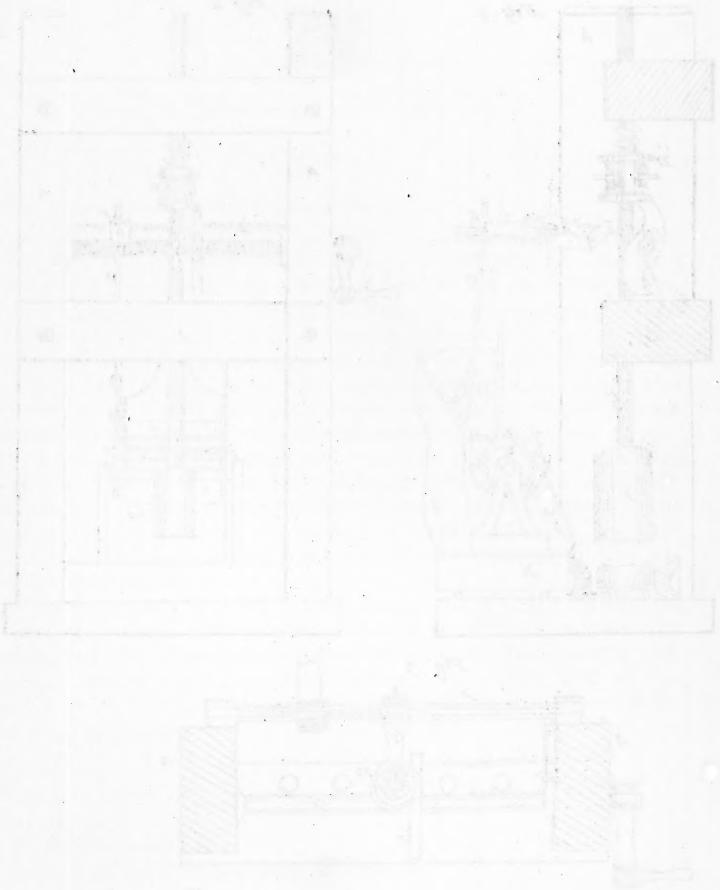
DEPARTMENT OF THE INTERIOR.

(Vignette.)

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Cusenbary and Mars June 24, 1873, number 140,250, for improvement in ore-stamp feeders.



No. 248
Hendy
v.
Golden State
& Mission Iron
Works et al.
} p 127

J. D. CUSENBARY & J. A. MARS.

Ore-Stamp Feeders.

No. 140,250. Patented June 24, 1873.

Fig. 1.

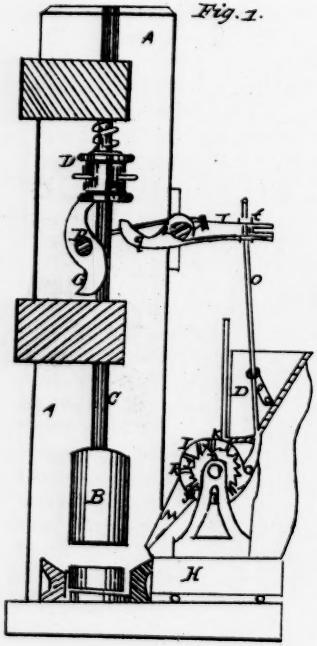


Fig 2

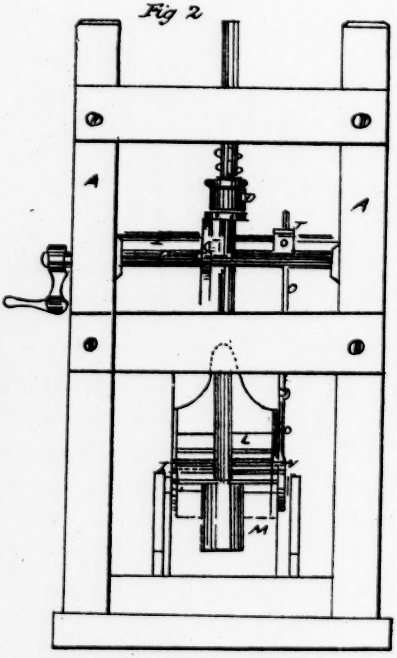
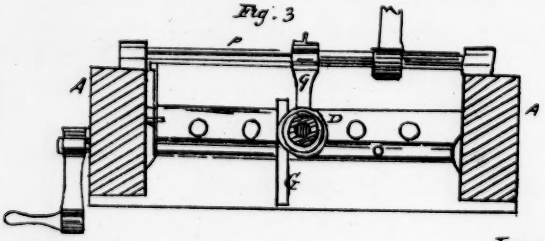


Fig. 3



Witnesses
John L Boone
C M Richardson

Inventors
James D Cusenbary
James A Mars
per Dewey & Co
Attys

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 18th day of July, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States one hundred and eighth.

[Seal of the Patent Office.]

E. M. MARBLE,
Commissioner.

125 (2–155.)

No. 140,250.

THE UNITED STATES OF AMERICA.

(Vignette.)

To all to whom these presents shall come:

Whereas James D. Cusenbary and James A. Mars, of San Francisco, California, have presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in ore-stamp feeders, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and have complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimants are adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Cusenbary and Mars, their heirs or assigns, for the term of seventeen years from the twenty-fourth day of June, one thousand eight hundred and seventy-three, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

126 In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this twenty-fourth day of June, in the year of our Lord one thousand eight hundred and seventy-three, and of the Independence of the United States of America the ninety-seventh.

[Seal of the Patent Office.]

W. H. SMITH,
Acting Secretary of the Interior.

Countersigned:
J. M. THACHER,
Acting Commissioner of Patents.

(Here follows diagram marked page 127.)

128 UNITED STATES PATENT OFFICE.

JAMES D. CUSENBARY and JAMES A. MARS, of San Francisco, Cal.

Improvement in Ore-Stamp Feeders.

Specification forming part of Letters Patent No. 140,250, dated June 24, 1873; application filed April 21, 1873.

To all whom it may concern:

Be it known that we, James D. Cusenbary and James A. Mars, of the city and county of San Francisco, State of California, have invented certain new and useful improvements in ore-feeders for quartz mills, and we do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use *my* said invention or improvements without further invention or experiment.

Our invention relates to improvements in that class of ore-feeders for quartz mills in which a pawl and ratchet are employed to operate the feeder automatically by the drop of the stamp. Our improvements consist, first, in mounting a feed cylinder upon a movable frame or truck, so that it can be readily shifted from place to place when it is desired to repair the mill, and, lastly, of
129 an improved arrangement for operating the pawl rod by the drop of the stamp without the use of springs.

In order to more fully illustrate and explain our invention, reference is had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a vertical section; Fig. 2 is a back view; Fig. 3 is a transverse section.

A represents the frame of a stamp mill; B is the stamp; C is the stamp stem, with its tappet D; F is the cam shaft, and G the cam which lifts the stamp; all of which are arranged in the ordinary manner of constructing a stamp battery. H H are the foundation timbers upon which the feeding cylinder I is mounted. These timbers are mounted upon rollers, so that the cylinder and frame can be moved about as desired. The cylinder I is made of cast metal, and has its outer surface formed into chambers or depressions J J, which are separated from each other by longitudinal partitions *k*. The cylinder and its carriage, when in working position, are placed below the hopper L, so that the ore from the hopper will fall into the chambers, and, as the cylinder revolves, be carried around until it falls by its own weight from the chambers upon an inclined apron, M, which directs it beneath the stamp.

130 This feeding cylinder, being made of cast metal, will not wear out like the endless belts heretofore used in this class of machines, and as it turns upon journals, like any common roller or cylinder, it cannot become clogged as the endless belt is liable to do.

To one end of the cylinder a ratchet wheel, N, is secured, and this ratchet wheel is operated by a pawl bar, C, to revolve the cylinder.

In order to operate the pawl bar from the tappet a horizontal shaft, *p*, has its opposite ends supported in boxes, which are secured to the sides of the upright timbers of the frame, so that the shaft will pass across directly in front of the tappet transversely to the movement of the stamp stem.

A fixed arm, *q*, extends backward from the shaft *p*, so that its extremity will terminate below the tappet in position to receive a blow from it when the stamp falls. Another fixed arm, *r*, extends forward from the shaft directly over the ratchet wheel, and to the extremity of this arm the upper end of the pawl bar *o* is attached by means of a trunnion block, *t*. This bar extends down to the middle of the periphery of the ratchet wheel, and has one or more upward projecting teeth on its lower end, which serve to engage with the teeth of the ratchet when the pawl is lifted by the rock shaft,
131 and thus rotate the feeding cylinder. It will, therefore, be evident that at each drop of the stamp the tappet will strike the arm *q* and carry it downward, thus giving the shaft *p* a rocking motion, the weight of the pawl and its arm *r* serving to rotate the shaft in an opposite direction, thus feeding the ore automatically when it is needed.

When there is a sufficient quantity of ore beneath the stamp the drop will not be sufficient to operate the cylinder, but when the quantity of ore beneath the stamp is reduced the drop is greater, and consequently the tappet strikes the arm *q* and operates the cylinder.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The feeding cylinder I, mounted upon the movable timbers H H, substantially as and for the purpose above described.

2. The rock shaft *p*, with its fixed arms *q r*, in combination with the pawl bar *o*, ratchet wheel N, and feeding cylinder I, when arranged to be operated by the tappet D, substantially as and for the purpose described.

In witness whereof we have hereunto set our hands and seals.

JAMES D. CUSENBARY. [L. S.]
JAMES A. MARS. [L. S.]

Witnesses:
J. L. BOONE.
C. M. RICHARDSON.

(Endorsed:) Filed March 18, 1884. L. S. B. Sawyer, clerk, by F. D. Moncton, deputy clerk.

132 "EXHIBIT B."

(2–172.)

UNITED STATES PATENT OFFICE.

(Vignette.)

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the digest of this office of all assignments, agreements, licences, powers of attorney, and other instruments of writing found of record up to and including July 11, 1883, under or relating to letters patent granted to James D. Cusenbary and James A. Mars June 24, 1873, No. 140,250, "ore-stamp feeder."

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this sixteenth day of July, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States of America the one hundred and eighth.

[Seal of the Patent Office.]

E. M. MARBLE,
Commissioner.

EXHIBIT "B."

(2–173.)

Assignors. (10346–10 M.)	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
James A. Mars	Joshua Hendy, of San Francisco, Cal.	Sept. 19, '78	Dec. 29, '79	Ore-stamp feeders. June 24, '73, #140,250.	All the right, title, and interest which was granted him in and to said invention by the said letters patent.	W 24	332
J. D. Cusenbary	Same	May 23, '81	June 16, '81	Same	Assigns all his right, title, and interest, being an undivided one-half part of said invention as secured by said letters patent, together with all further improvements, reissues, and extensions which may be hereafter secured therefor or thereon.	T 26	217

[Seal of the Patent Office.]

(Endorsed:) Filed March 18, 1884. L. S. B. Sawyer, clerk, by F. D. Moncton, deputy clerk.

134 At a stated term, to wit, the July term, A. D. 1885, of the circuit court of the United States of America of the ninth judicial circuit in and for the district of California, held at the court-room, in the city and county of San Francisco, on Monday, the 13th day of July, in the year of our Lord one thousand eight hundred and eighty-five.

Present: Honorable Lorenzo Sawyer, circuit judge.

Order Allowing Appeal.

JOSHUA HENDY
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS *et al.* } No. 2628.

On motion of J. H. Miller, Esq., solicitor for the complainant herein, it is ordered that an appeal from the decree filed and entered in the above-entitled cause by the circuit court of the
135 United States of America of the ninth judicial circuit in and for the district of California on August 25th, A. D. 1884, being a day in the July term, A. D. 1884, of said circuit court, be, and the same hereby is, allowed.

It is further ordered that a certified transcript of the pleadings, evidence, and proceedings herein be forthwith transmitted to the Supreme Court of the United States.

136 *Bond on Appeal.*

In the Supreme Court of the United States.

JOSHUA HENDY, Appellant,
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS (a Corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, Appellees.

Know all men by these presents that we, William Bushman and Joseph Roylance, are held and firmly bound unto the Golden State and Miners' Iron Works (a corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, the above-named appellees, in the sum of five hundred (500) dollars, gold coin of the United States of America, to be
137 paid said Golden State and Miners' Iron Works (a corporation), its successors or assigns, H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, their heirs, executors, or administrators; to which payment, well and truly to be made, we bind ourselves and each of us, jointly and severally, and our and each of our heirs, executors, and administrators, firmly by these presents.

In witness whereof we have hereunto set our hands and affixed our seals this twenty-eighth day of July, 1885.

The condition of this obligation is such that whereas the above-named Joshua Hendy has taken an appeal to the Supreme Court of the United States to reverse the decree rendered by the circuit court of the United States of America of the ninth judicial circuit in and for the district of California in the cause entitled Joshua
138 Hendy, complainant, against The Golden State and Miners' Iron Works (a corporation) *et al.*, defendants (No. 2628), which said decree was filed and entered of record in said circuit court on the twenty-fifth day of August, A. D. 1884:

Now, therefore, if the the above-named Joshua Hendy shall prosecute his said appeal to effect and answer all costs if he shall fail to make good his plea, then this obligation shall be void; otherwise to remain in full force and virtue.

WILLIAM BUSHMAN. [SEAL.]
JOSEPH ROYLANCE. [SEAL.]

Signed, sealed, and delivered in presence of—
LEWIS B. HAINS.

UNITED STATES OF AMERICA, *District of California:*

William Bushman and Joseph Roylance, being duly sworn, each for himself says that he is a householder within the district
139 aforesaid, and that he is worth five hundred dollars in gold coin of the United States of America, exclusive of property exempt from execution and over and above all his just debts and liabilities.

WILLIAM BUSHMAN.
JOSEPH ROYLANCE.

Subscribed and sworn to before me this 28th day of July, 1885.
[SEAL.] LEWIS B. HAINS,
Notary Public.

Endorsed: The form of the within bond and the sufficiency of the sureties thereon are hereby approved. (Signed) Lorenzo Sawyer, U. S. circuit judge, 9th judicial circuit. Filed July 30, 1885. L. S. B. Sawyer, clerk.

140 In the Circuit Court of the United States of the Ninth Judicial Circuit in and for the District of California.

JOSHUA HENDY
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS *et al.* } No. 2628.

I, L. S. B. Sawyer, clerk of the circuit court of the United States for the district of California, do hereby certify the foregoing one hundred and thirty-nine written pages, including diagrams, numbered from 1 to 139, inclusive, to be a full, true, and correct copy of the record and of all proceedings in the above and therein entitled

cause, and that the same together constitute the transcript on appeal to the Supreme Court of the United States in said cause.

141 Attest my hand and the seal of said circuit court this thirtieth day of July, A. D. 1885.

[The Seal of the Circuit Court, District of Cal'a.]

L. S. B. SAWYER, *Clerk.*

142 UNITED STATES OF AMERICA, *ss:*

To the Golden State and Miners' Iron Works (a corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, Greeting:

You are hereby cited and admonished to be and appear at the Supreme Court of the United States to be held at the city of Washington, in the District of Columbia, on the second Monday of October, A. D. 1885, pursuant to an order allowing an appeal from the final decree of the circuit court of the United States in and for the district of California, wherein Joshua Hendy is appellant and you are appellees, to show cause, if any there be, why the said decree in the said order mentioned should not be corrected and speedy justice should not be done to the parties in that behalf.

Witness the Honorable Lorenzo Sawyer, judge of the circuit court of the United States for the district of California, this 30th day of July, A. D. 1885, and of the Independence of the United States the one hundred and tenth.

[The Seal of the Circuit Court, District of Cal'a.]

LORENZO SAWYER,
U. S. Circuit Judge, District of California.

143 [Endorsed:] 2628. In the Supreme Court of the United States. Joshua Hendy, appellant, *vs.* The Golden State & Miners' Iron Works, & *al.*, appell*ants.* Citation. Filed July 30, 1885. L. S. B. Sawyer, clerk.

Service of within citation and receipt of copy admitted this 30th day of July, A. D. 1885.

M. A. WHEATON,
Solicitor for Respondents and Appellees.

Endorsed on cover: California C. C. U. S. No. 278. Joshua Hendy, appellant, *vs.* The Golden State and Miners' Iron Works, H. B. Angell, Wales L. Palmer, R. F. Knox, *et al.* Filed September 2, 1885.

27-378

Office Supreme Court U. S.
FILED.
APR 14 1888
JAMES. H. McKENNEY,
CLERK.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1887.

NO. 278.

JOSHUA HENDY, APPELLANT.

v.

THE GOLDEN STATE & MINERS IRON WORKS ET ALS., APPELLEES.

Argument on Behalf of Appellant.

BY

J. H. MILLER,

AND

J. P. LANGHORNE.

THE OCCIDENT PRINT, 432 MONTGOMERY ST.

cause, and that the same together constitute the transcript on appeal to the Supreme Court of the United States in said cause.

141 Attest my hand and the seal of said circuit court this thirtieth day of July, A. D. 1885.

[The Seal of the Circuit Court, District of Cal'a.]

L. S. B. SAWYER, *Clerk.*

142 UNITED STATES OF AMERICA, *ss:*

To the Golden State and Miners' Iron Works (a corporation), H. B. Angell, Wales L. Palmer, R. F. Knox, Cyrus Palmer, C. F. Moulthrop, and Israel F. Knox, Greeting:

You are hereby cited and admonished to be and appear at the Supreme Court of the United States to be held at the city of Washington, in the District of Columbia, on the second Monday of October, A. D. 1885, pursuant to an order allowing an appeal from the final decree of the circuit court of the United States in and for the district of California, wherein Joshua Hendy is appellant and you are appellees, to show cause, if any there be, why the said decree in the said order mentioned should not be corrected and speedy justice should not be done to the parties in that behalf.

Witness the Honorable Lorenzo Sawyer, judge of the circuit court of the United States for the district of California, this 30th day of July, A. D. 1885, and of the Independence of the United States the one hundred and tenth.

[The Seal of the Circuit Court, District of Cal'a.]

LORENZO SAWYER,
U. S. Circuit Judge, District of California.

143 [Endorsed:] 2628. In the Supreme Court of the United States. Joshua Hendy, appellant, *vs.* The Golden State & Miners' Iron Works, & *al.*, appellants. Citation. Filed July 30, 1885. L. S. B. Sawyer, clerk.

Service of within citation and receipt of copy admitted this 30th day of July, A. D. 1885.

M. A. WHEATON,
Solicitor for Respondents and Appellees.

Endorsed on cover: California C. C. U. S. No. 278. Joshua Hendy, appellant, *vs.* The Golden State and Miners' Iron Works, H. B. Angell, Wales L. Palmer, R. F. Knox, *et al.* Filed September 2, 1885.

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SUPREME COURT OF THE UNITED STATES.

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NO. 278.

JOSHUA HENDY, APPELLANT.

V.

THE GOLDEN STATE & MINERS IRON WORKS ET ALS., APPELLEES.

Argument on Behalf of Appellant.

BY

J. H. MILLER,

AND

J. P. LANGHORNE.

THE OCCIDENT PRINT, 429 MONTGOMERY ST.

IN THE

Supreme Court of the United States.

October Term, 1887. No. 278.

JOSHUA HENDY, APPELLANT,

VS.

THE GOLDEN STATE AND MINERS IRON WORKS (a corporation), H. B. ANGELL, WALES L. PALMER, R. F. KNOX, CYRUS PALMER, C. F. MOULTHROP AND ISRAEL F. KNOX,

APPELLEES.

STATEMENT OF THE CASE.

This is an action in Equity brought by the appellant against the appellees in the Circuit Court for the District of California, to restrain the infringement of certain Letters Patent of the United States. The Golden State and Miners Iron Works is a corporation, organized under the laws of California and doing a manufacturing business at San Francisco. The other appellees (defendants in the Court below) are the directors and officers of said corporation.

The patent in suit is entitled "Improvement in Ore-stamp Feeders," and was granted to James D. Cusenbary and James A. Mars as joint inventors, on June 24th, 1873. It is numbered 140,250. By mesne assignments the appellant herein became and is now the sole owner and holder of the patent.

The bill is in the usual form, and was filed July 29, 1881. (Record, fol. 15.) An answer was filed by appellees on October 11, 1881 (Record, fol. 23), in which they

1. Deny the novelty of the invention,
2. Deny its utility,
3. Deny infringement,
4. Allege the patent to be void because of an ambiguous and incomplete specification, and
5. Set up certain prior patents in anticipation.

The case went to trial in the usual way, and on final hearing a decree was made dismissing the bill at complainant's costs. This decree was entered on August 25, 1884, (Record fol. 27), to reverse which is the object of this appeal.

QUESTIONS INVOLVED AND THE MANNER IN WHICH THEY ARE RAISED.

No written opinion was filed in the case by the learned Judge of the lower Court.

The decree itself is very brief, and reads as follows, viz:

"This cause came on to be heard at the last term, "and was argued by counsel, and thereupon, upon "consideration thereof, it is ordered adjudged, and "decreed that the complainant's bill of complaint "herein be, and the same hereby is dismissed at "complainant's cost." (Record fol. 27.)

Under such circumstances it is impossible to know what was the ground of the decision. There were

several defenses set up; and the decree may have been based on one, or several, or all of them, so far as the record speaks.

Those defenses were:

1. *Non-infringement.*
2. *Anticipation.*
3. *Lack of Novelty.*
4. *Ambiguity of the specification.*
5. *Lack of Utility.*

These issues are all raised in the usual manner by answer.

There is one other question involved in the case, not raised by the pleadings, which may become material. It is this: On cross-examination of one of complainant's witnesses, James A. Mars, who is one of the patentees, he was asked by appellees' counsel, what part of the patented invention he made, and also certain other questions tending to show that he did not make any material part of the patented invention. Counsel for appellant objected to all those questions, and it will be necessary for this Court to pass on such objections. Hence we add as another question involved on this appeal, the following:

6. *Admissibitity of certain evidence.*

SPECIFICATION OF ERRORS.

As it is impossible to determine from the record upon which one of the several defenses pleaded the decree is based, or whether upon several or all of them, and as Rule 21 of this Court requires us to specify every particular wherein the decree is alleged

to be erroneous, we are forced to presume that *all* of the defenses were held good and to specify the ruling on each one as error. This we accordingly do as follows, viz:

1. The decree is erroneous in adjudging that the appellees had not infringed upon the first claim of the patent.

2. The decree is erroneous in adjudging that the first claim of the patent is anticipated by the prior patents set up in the answer.

3. The decree is erroneous in adjudging the first claim of the patent to be void for a lack of novelty.

4. The decree is erroneous in adjudging the first claim of the patent to be void by reason of an ambiguous and insufficient specification.

5. The decree is erroneous in adjudging the first claim of the patent to be void for lack of utility

6. The decree is erroneous in that certain incompetent testimony was allowed to be given on the trial, which testimony will be hereinafter particularly specified.

7. The decree is erroneous in that the same is based on an erroneous construction of the first claim of the patent.

8. Said decree is erroneous in that the lower court construed the first claim of appellant's patent to cover only a feed-cylinder having longitudinal partitions on its periphery; whereas said claim, properly construed, covers a feed-cylinder either with or without said longitudinal partitions.

9. Said decree is erroneous in that the lower court held that a smooth surfaced feed-cylinder was not an equivalent of one with a corrugated surface, and was not an infringement of the first claim of the Letters Patent sued on.

10. Said decree is erroneous in that the first claim of said patent, when properly construed in view of the specification and the state of the art at the time of invention, covers and includes a feed-cylinder with a smooth faced periphery, mounted on movable timbers, and the evidence shows that the appellees have used such a device and thereby infringed the first claim of the patent.

ARGUMENT.

As already stated, it cannot be ascertained from the record on what ground the decree is based, there being no intimation in the decree itself on the subject and no written opinion of the Court. This will necessitate an argument of the *whole case* in this Court.

The questions involved in this case depend almost entirely upon the construction to be given to the patent. Therefore we shall first endeavor to show what is the true and proper construction of the patent, and then it will be comparatively an easy matter to test the correctness of the decree.

CONSTRUCTION OF APPELLANT'S PATENT.

This patent was granted to James D. Cusenbary and James A. Mars, as joint inventors, on June 24, 1873, and is numbered 140,250. It is entitled "Improvement in ore-stamp feeders." The device is

used for feeding ore to the battery of a stamp-mill. By reference to the Model—"Exhibit C."—and to the patent itself—"Exhibit A." (Record fol. 12) the nature of the device will be readily understood. It consists of three essential features, viz: (1) A hopper or receptacle for holding the uncrushed ore, (2) A roller or cylinder, placed longitudinally across and below the ore exit of the hopper, for feeding the ore from the hopper to the battery, and (3) A mechanism for rotating the cylinder automatically by the drop of the stamp. This last element is not shown in the model for the reason that it is the subject-matter of the second claim only, which has not been infringed. The hopper is of the usual form seen in automatic ore-feeders, having a vertical front and sloping back. The feed-roller is made of metal and turns on journals, which rest in bearings made in the frame work of the feeder. The periphery of the feed-roller, instead of being smooth, is made into depressions, which are separated from one another by longitudinal partitions, giving it somewhat of the appearance of a water-wheel. To one end of the roller a ratchet-wheel is attached, operated by a pawl-bar, which extends upward and is attached to one end of a fixed arm, which is fulcrumed near its centre to the mill-frame, and has its other end terminating below the tappet on the stamp-stem in such position as to be struck by it when the stamp drops. This device is not shown in the model, but is shown in the patent. The operation of the machine is as follows: As the stamp drops, the tappet on its stem strikes the end of the fixed arm terminating beneath it; this depresses one end of the arm and causes the

opposite end to ascend, which carries the attached pawl-bar with it, and the lower end of the pawl, engaging with the teeth of the ratchet-wheel, rotates the cylinder, and the ore is thereby emptied from the pockets of the cylinder into the battery. The amount of ore deposited is regulated by the drop of the stamp. When there is a large quantity of ore in the battery, the drop of the stamp will not be great enough for the tappet to strike the fixed arm, and hence the cylinder will not rotate. But when the stamp crushes the ore to a powder and thereby reduces its bulk, the tappet will then descend far enough to, and will, strike the fixed arm in its descent, and the cylinder will be again rotated. Hence the feed is automatic, being regulated by the drop of the stamp. The entire device is mounted on a movable frame so that it can be readily shifted from place to place.

There are two claims in the patent. The second one covers the mechanism for rotating the cylinder; and as we do not charge an infringement of that claim, it may be dismissed from further consideration. Only the first claim has been infringed. That claim reads as follows, viz:

1. "*The feeding-cylinder I mounted upon the movable* "*timbers H H, substantially as and for the purpose* "*described.*"

What is the proper construction of this claim? The lower Court held that it covered only a cylinder with corrugations, and did not cover a smooth cylinder. This, we shall endeavor to show, was error.

It is true the claim is not generic in language. It calls for "the feeding cylinder I," and the "feeding-cylinder I," has depressions on its surface. But the claim of a patent is not to be construed by its language alone. It is not a law unto itself. It must be read in the light of the specification and the state of the art and must conform thereto. We must first ascertain the precise *scope of the invention*, and then so construe the claim as to cover and protect it. *The rule of construction is liberality.* Said the learned Judge Story as early as the year 1833 in *Ames* v. *Howard* (1 Sumn. 482): "Patents for inventions are not to be "treated as mere monopolies, odious in the eyes of the "law, and therefore not to be favored; nor are they "to be construed with the utmost rigor as *strictissimi* "*juris.* * * * * The object is to ascertain "what, from a fair sense of the words of the specifi-"cation, is the nature and extent of the invention "claimed by the party; and when the nature and "extent of that claim are apparent, not to fritter "away his rights upon formal or subtle objections of "a purely technical character."

The same learned judge was equally felicitous of expression in *Blanchard* v. *Sprague* (3 Sumn. 535), and the rule laid down by him has been adopted and approved by this court in numerous cases.

Winans v. *Denmead*, (15 How. 330.)

Turrill v. *R. R. Co.*, (1 Wall. 491.)

Rubber Co., v. *Goodyear* (9 Wall. 788.)

Klein v. *Russell* (19 Wall. 433.)

In accordance with this rule of construction, it is quite common to give a specific claim a *generic* construction—to make it broader than the language. And so likewise, where a broad construction would have the effect to invalidate the claim, the courts frequently adopt a narrow construction, so as to save the patent. This was done in *Klein* v. *Russell*, (19 Wall. 433). The rule is to give such a construction as will uphold, rather than one which will invalidate a claim.

Let us now examine the specification in the light of the above rule. In the stating part thereof, it says :

"*Our improvements consist first, in mounting a feed-*
"*cylinder upon a movable frame or truck, so that it can*
"*be readily shifted from place to place, when it is desired*
"*to repair the mill, etc.*" (Record folio 13.)

This sentence contains the essence of the invention. It will be observed that no particular kind of cylinder is specified. The language is broad. It calls for a "feed-cylinder," without qualification as to construction, and any feed-cylinder would answer this requirement. Hence the invention consists in mounting *any kind of a feed-cylinder* on movable timbers.

Having given this general statement of their invention, the patentees, "in order to more fully illus-
"trate and explain" it, proceed to specify in detail the manner of constructing their machines. The law requires this in a patent. It prescribes that, in "case of a machine he, (the patentee), shall explain the principle of it, *and the best mode in which he has* "*contemplated* applying that principle" (Rev. Stats. 4888).

Now the *principle* of the invention consists in feeding ore from a hopper over a rotating cylinder into a battery automatically by the drop of a stamp. The specification clearly shows this, and sums it up in a nut-shell when it says, "our invention consists in "mounting a (any) feed-cylinder on a movable frame "or truck." The specification then proceeds to explain in detail the best manner of constructing and applying the feed-cylinder. It says: "The cylinder "I is made of cast metal, and has its outer surface "formed into chambers or depressions J J, which are "separated from each other by longitudinal parti-"tions K."

And further on: "The feeding-cylinder being made "of cast metal, will not wear out like the endless belts "heretofore used in this class of machines, and as it "turns on journals, like any common roller or cylin-"der, it cannot become clogged as the endless belt is "liable to do."

This is merely following the direction of the statute quoted *supra*. It merely describes "the best mode "in which he has contemplated applying the princi-"ple."

It is too well settled for controversy, that when a patentee describes the principle of his machine and then the form in which he has contemplated the application of that principle, a claim which claims the invention *in that particular form* is sufficient to cover all forms, there being no disclaimer.

Says Judge Shepley in *Murphy* v. *Eastman* (5 Fish 306): "In contemplation of law, after he has fully "described his invention, and shown its principle

"and claimed it in a form which perfectly embodies "it, he is deemed to claim *every form* in which his "invention may be copied."

This is precisely what the patentees here have done. They have fully described the invention. They have shown its principle to consist in feeding ore over a cylinder (*i. e.* any cylinder) mounted on a movable frame. They have claimed the invention in a form which perfectly embodies it.

They have not disclaimed other forms. They have not shown that form is of the essence of the invention, but merely that the particular form shown, to wit: one with a corrugated surface, is the best form. Any other form of cylinder accomplishing the same result, would be within the calls of the patent. The cylinder might be polygonal, or might have curved corrugations, or teeth like a threshing cylinder, or be smooth-faced, all of which have been actually used. These are all merely different forms embodying the same principle. They are not disclaimed in the patent. It might as well be argued that a *wrought iron* cylinder, although constructed with depressions, is not covered by the claim, because the specification calls for a cylinder made of *cast metal*. On principle, therefore, the claim of this patent ought not to be limited to a corrugated cylinder, but should be held to cover every form of cylinder which accomplishes the same result, whatever its form may be.

These views are strengthened, and in our judgment rendered unassailable, when we consider the state of the art. The testimony shows that in the earliest stages of mining, ore was fed to the battery by hand. It was simply *shoveled* in. (Record, fol.

51.) The next advance in the art was the automatic feeder, that is, a feeder operating automatically by the drop of the stamp. One Stanford invented it, and procured a patent, which was the first automatic ore-feeder ever devised or gotten up. (Record, fols. 50–2.) The Stanford feeder consisted of a shaking or vibrating tray, having an up and down motion. (Record, fol. 50.) *It was a total failure.* (Record, fol. 51.)

The next automatic ore-feeder was the *endless belt* machine invented by one Cochrane. In that device an endless belt was used for emptying the ore into the battery. It is referred to in the patent here sued on (Record, fol. 14.). It was not a successful machine, and never went into use to any great extent.

The above mentioned were the only automatic ore feeders known prior to the invention of Cusenbary and Mars. *Hence these patentees were the first to use a feeding cylinder of any kind.* They saw the vice in the prior systems. Shaking trays and endless belts were failures. Something else was necessary to make a successful feeder. They were the first to conceive of the broad principle of feeding ore by means of a rotating cylinder. *No cylinder of any kind whatever had ever been known or used in ore feeders before their invention.* Hence their patent is a *bottom patent.* It must receive a broad and liberal construction.

Giving it such construction it covers broadly *any feed cylinder mounted on movable timbers, whether its periphery be corrugated or smooth-faced.*

There is one other feature in the first claim, which requires some notice, and that is the "movable timbers H H." These timbers are merely the frame or truck on which the feeder rests. They are made movable so that the device can be readily shifted from place to place. Formerly ore-feeders were permanently fixed to the mill-frame. The old Stanford feeder was so constructed, (Record fol. 48). Hence it was an improvement to detach them from the mill, so that when repairs were needed they could be removed without stopping the mill. Not so with permanantly attached feeders. Hence a *detachable* feeder was needed—one separate from the mill—in a word a *portable* feeder. This is the kind of feeder described in the patent, and when it speaks of a feeder mounted on movable timbers, it means simply a *portable* feeder. Adding this element to the claim, it covers *a feeding-cylinder when used in an automatic, portable ore-feeder.*

Although Cusenbary and Mars were the original and first inventors of a feed-cylinder, whether used in a portable or a stationary feeder, we are willing to limit the claim to a portable device. They were entitled to claim the cylinder in all connections; but if they were content to limit it to a portable device (doubtless through the ignorance of their solicitor): that does not invalidate the claim. A patentee may jeopardize his patent by claiming *too much*, but not by claiming *too little*. Thus in *Russell and Irwin Mf'g.Co.* v. *Mallory* (5 Fish., 632), the invention was a latch, so constructed, that without taking it out of its case, it could be turned over and made adjustable for either

a right-hand or a left-hand door, as the case might be. The claim read as follows:

"The combination of a lock and latch when the "latch-bolt and its operative mechanism are arranged "in a case or frame independent of the main case, "and constructed so that the latch-bolt may be re- "versed, substantially as described, without remov- "ing the said independent case from the main case."

The latch was entirely new; but it will be obserevd that it was claimed *in cambination with a lock*. The Court held that the latch, being new, it was open to the patentee to claim it broadly as a single element in whatever possible combination it might be used; but he was also at liberty to claim it, as he had done, in combination with a lock. He had unnecessarily restricted his claim, but it was none the less valid.

So here Cusenbary and Mars were the inventors of a feed-cylinder, and were therefore entitled to claim it broadly, whether used in a stationary or a portable ore-feeder. They saw fit, however, to claim it only in combination with a portable feeder, thus restricting the claim to that extent. But the claim is none the less valid, and we are willing to accept that construction.

Having ascertained the construction to be placed on the claim of the patent alleged to be infringed, we shall now take up the points involved on this appeal, commencing with the question of infringement.

I.

Question of Infringement.

The Circuit Court erred in holding that there was no infringement.

The machines made and sold by the appellees are represented by "Complainant's Exhibit D," (Record folio 38). It was admitted by respondents that they had made and sold ore-feeders "having a hopper, "with a gate in front of the hopper and a feeding "roller underneath, such feeding roller operated by "the stroke of the tappet of the stamp, substantially "as shown in the model Exhibit D." (Record folio 42).

An inspection of the model Exhibit D, shows that the only difference between it and the machines shown in the patent, is in the construction of the feed-cylinder. In the patent the feed-cylinder has a *corrugated surface*; in the Model Exhibit D, the feed-cylinder has a *smooth surface*. Appellees have simply removed the ribs (or longitudinal partitions) from our cylinder and thereby made its surface smooth-faced. Their machine is a portable automatic ore-feeder, showing a *smooth-faced* feed-cylinder mounted on movable timbers. The only difference between the rival machines, is the difference between a *corrugated* and a *smooth-faced* feeding surface. This difference is a mere difference of form, or what is styled in Patent Law a "formal change." Mere change of form, where form is not of the essence of the invention, is no answer to a charge of infringement. Said Judge J. Blatchford in *Leroy* v. *Tatham*, (2 Blatch. 486):

"A change of form is not a substantial change; a "patentee is not confined to the precise arrangement "shown in his patent. Formal changes are nothing; "mere mechanical changes are nothing. All these "may be made outside the description of the patent."

A well considered case is that of *Murphy* v. *Eastman*, (5 Fish. 306), where the invention consisted of a brush-head, designed to obviate the scratching of articles dusted. Around the head was formed a groove, into which was fitted a rubber ring, in the shape of a rhombus, so that the ring, fitting into the groove, which had a sharp angle in it, presented a sharp angle outward. The claim was for "The com- "bination and arrangement of brush-head *construct-* "*ed as described*, and provided with an *angular* groove "or furrow around the lower side, with a rubber ring "fitting therein, etc." The defendant had used a brush-head containing a *circular* groove and rubber band fitted therein, etc. This *circular* groove was held to be an infringement of the *angular* one. Said Judge Shepley, in deciding the case "The patentee "does not claim in terms the thing patented, however "its form and proportions may be varied. But the "law so interprets his claim without the addition of "these words. In contemplation of law, after he has "fully described his invention and shown its princi- "ple and claimed it in a form which perfectly em- "bodies it, unless he disclaims other forms, he is "deemed to claim every form in which his invention "may be copied."

So too in *Winans* v. *Denmead*, (15 How. 330), the claim was for a coal car having a body "in the form "of a frustum of a cone." That is to say, the car

body was *conical* in form, so that the pressure of the load outward, would be equal in all directions. The defendant had used a car body *octagonal* in form, and it was held to be an infringement. Said Mr. Justice Curtis in that case :

"It is generally true, when a patentee describes a "machine and then claims it *as described*, that he is "understood to intend to claim, and does by law "actually cover, not only the precise form he has de- "scribed, but *all other forms* which embody his inven- "tion; it being a familiar rule that to copy the princi- "ple or mode of operation described is an infringe- "ment, although such copy should be totally unlike "the original in form or proportions."

And so likewise in the English case of In re *Newall* v. *Elliott*, (4 C. B. N. S. 269), a cylinder with a spherical shaped top was held to be an infringement of a cone.

Of course there are instances where form is of the essence of the invention, where the invention can be embodied only in the particular form shown in the patent. To use any other form in such case would be no infringement, because it would not be a use of the invention. Unless a change of form introduces a new principle or mode of operation or new kind of result, it is no answer to a charge of infringement.

An instructive case on this point is *Pitts* v. *Wemple* (2 Fish. 11.) The invention was an endless belt proceeding from a threshing machine to a fan-mill. It was divided into cells by wooden partitions extending laterally across its surface and of sufficient

height to allow the grain, which was separated from the straw and chaff by the agitation of the belt, to fall through into the cells. The straw and chaff were carried along on the tops of the boxes without falling through, and passed off over the end of the belt. The cells emptied the grain into the fan-mill. The claim of the patent was: "The construction and use of an "endless apron, divided into troughs or cells, in a "machine for cleaning grain, operating substantially "in the way described."

For the purpose of anticipation the defendant produced a prior patent, showing an endless belt proceeding from a threshing machine to a sieve. The belt had no cells, but was smooth-faced. Its function was merely to carry the grain from the thresher, mixed with the straw and chaff, to the sieve. By the agitation of the sieve the grain was separated from the straw and chaff. It was held to be no anticipation. The two machines were different.

The patented belt not only acted as a *carrier*, but also as a *separator* during the act of carriage. The separation was effected by the vibration of the belt, and the consequent falling through of the grain into the cells. The anticipating belt acted only as a carrier, the separation of grain from straw and chaff being effected in the sieve after they left the belt. Hence there were two different results accomplished by the two machines. One was simply a carrier; the other a carrier and separator. But it was held that if they both accomplished the same result; as if, for instance, they both acted simply as carriers, or if they both acted as carriers and separators, they would

be equivalents, although one had a smooth, and the other a corrugated surface.

As further illustrative of the principle under consideration, we refer to the case of *Cross* v. *Union Metallic Fastening Co.*, (29 Fed. Rep. 293.) The claim of the patent was for a nail-carrier, which was identical with a prior device, except that in the latter its edge was *smooth-faced*, while in the patent it was *corrugated* or *rifled*. No new result was accomplished by this change of form, and the two devices were held to be equivalents. Said Colt J., in delivering the opinion : "There is nothing which can be properly termed invention in making the edge of the "carrier *smooth* instead of *corrugated*."

The latter device was claimed to be an improvement—a better machine—but that did not affect the question of identity. The *corrugated* surface was held to be identical with the *smooth* surface.

Apply these principles to the case at bar. The corrugated roller acts simply as a carrier of the ore from the hopper to the battery. The smooth roller does nothing more; it, too, acts as a carrier of the ore from the hopper to the battery. They both perform this operation in substantially the same way, viz: by a driving mechanism which rotates the roller automatically by the drop of the stamp. No new result, no new way for accomplishing an old result, is found in appellees' machine; but on the contrary, we find an accomplishment of the same result in substantially the same way. Appellees have simply removed the ribs from our cylinder and thereby made it smooth-faced. The function of those ribs is to form cups or receptacles for tempor-

arily holding the ore before it falls into the battery. Only one of them can operate at a time, viz: the one immediately beneath the hopper. As the cylinder revolves the cup is emptied of its contents. The ribs do not act as the blades of a water-wheel. In such case the blades not only act as a surface against which the force of the water acts as a motor, but the water enclosed in the cups by its own gravity rotates the wheel. But with our feeder this is not the case. The flow of the ore into the cup does not rotate the cylinder, nor does the gravity of the ore in the cups. The pawl and ratchet device rotates the cylinder and that device receives its motive power from the drop of the stamp. The function of the cup is simply to hold the ore temporarily. It is simply to prevent too much of it from flowing into the battery at one drop of the stamp. Now take the smooth cylinder.

At a drop of the stamp a certain quantity of ore will fall from the hopper upon the cylinder. A portion of it would naturally flow over the cylinder into the battery, and the balance would remain on the top of the cylinder. At the next drop of the stamp this ore would fall into the battery and a new supply fall from the hopper, and the same operation would go on at each successive drop of the stamp. In order to prevent a too rapid flow of ore, and to regulate the flow, appellants have placed a "regulating gate" at the bottom of their hopper just over and above the cylinder. The object of said gate is to regulate the flow of the ore and prevent a too rapid feeding, the very identical function of the partitions on our cylinder.

Thus we see that the chambered cylinder performs the same function as the smooth cylinder with its regulating gate. The operation of each machine is to feed ore over a cylinder. The two devices are substantially the same. Take away the partitions on our cylinder, and we would still have the same operation—feeding ore over a cylinder. That is what the appellees have done. The corrugated cylinder is an improvement on the smooth one and includes it. If the smooth cylinder had been patented first, the corrugated cylinder could have been patented afterwards as an improvement. But the corrugated cylinder was patented first. It contains not only the essence or principle of the invention, which is feeding ore over any kind of a cylinder, but also contains the variation or improvement of a corrugated cylinder. It necessarily includes the smooth cylinder. The appellees have taken the main feature or bottom principle of our invention and discarded the variation or improvement.

The specification does not state how deep the depressions are to be. They may be so shallow as to practically form a smooth cylinder. They certainly do form a smooth cylinder when wet, sticky, ore's are being fed, because the cavities will then fill up. The witnesses all so testify.

Test. of Hendy, fol. 41.

Test. of Duffy, fol. 57.

Test. of Woodbury, fol. 74.

In such case there can be no pretense of a difference between the two cylinders.

Yet if our first claim does not cover a smooth cylinder, infringers could with impunity use our cylinder with the pockets or depressions on it *when feeding wet, sticky ore*, because then the pockets would fill up and the cylinder would become smooth-faced; but they could not use it when feeding dry ores. In other words they would be infringers when feeding dry ores, but not infringers when feeding wet ores. Such a construction would be a most anomalous one. The case cannot rest on any such narrow grounds. The proper way to determine the question is to ascertain the principle of the patented machine, and then see whether the appellees have made use of that principle, either in the same or a different form. As stated *supra*, the principle of the patented machine is the feeding of ore over a cylinder from a hopper to a battery automatically by the drop of a stamp. The problem before the inventors was to transport the ore from the hopper to the battery by such appropriate means as would give a regular feed in suitable quantities. Formerly this had been done, or rather sought to be done, by shaking trays and revolving belts, the first system being embodied in the old Stanford patent, and the latter in Cochrane's. The present patentees saw the defects in those devices and conceived of using a cylinder to remedy them. Hence they interposed a cylinder (at first a smooth one) between the hopper and the battery. Its function was to receive the ore from the hopper and transport it to the battery. This was a new principle discovered.

It had never been attempted before. *A cylinder had never been soused.* It was different from Stanford's

tray; it was unlike Cochrane's belt, both in principle and in form. In a word, it was a novel idea, a new and useful invention. Having conceived this broad principle, viz: the insertion of a cylinder between the hopper and the battery, the patentees considered that a smooth-faced cylinder would not work so well as a corrugated one, because the ore was liable to slip over its surface even when in a state of rest. That is to say, the feed would be too rapid. Hence they placed shallow longitudinal partitions across the surface, for the purpose of holding the ore and preventing a too rapid feed. This did not change the invention. It merely varied the form; and when they claimed the invention in that particular form, (because in their judgment it was the best form), they surely cannot be cut out of the essence of the invention and limited to the variation.

Place the two models side by side, and it will appear marvellous indeed if they are not identical in principle. Said the learned Judge, who decided this case, in a former case, *Carter* v. *Baker*, (1 Sawy. 515): "An infringement takes place whenever a party "avails himself of the invention of the patentee "without such variation as will constitute a new dis- "covery. It is a copy of the thing described in the "specification of the patentee, either without varia- "tion, or with only such variations as are consistent "with its being in substance the same thing."

Now the appellees here have simply removed the ribs from our cylinder. That is the sole change made. Is that such a variation as will constitute a new discovery? If so, what discovery was it? No new result is accomplished, no new or better way of

accomplishing the same result. Both machines feed ore over a cylinder automatically by the drop of a stamp, and there is no pretense that they do anything else. They both do this in substantially the same manner, by a driving mechanism receiving power from the stamp. One may be a better machine than the other ; but that is not a difference in principle. The invention is feeding ore over a cylinder. That is its substance; that is its essence. Hence it is immaterial whether the cylinder be corrugated, smooth-faced, or polygonal. Those are all variations of one principle.

Referring again to the case of *Carter* v. *Baker*, (1 Sawy. 515), we find this language: "The inquiry, "therefore, should be, whether the defendant's device "is in sbstance and effect a colorable evasion of the "plaintiff's contrivance, or whether it is really a new "and substantially different thing. If the defendants "have taken the same general plan, and applied it to "the same purpose and produced the same effect in "substantially the same mode, although they have "varied the form of construction merely, it will be "substantially in contemplation of the patent law, "the same thing."

In all seriousness, we ask how can this language be consistent with the theory of non-infringement in this case? Is not the appellee's device in substance and effect merely a colorable evasion of ours? Is it really a new and substantially different thing? Have they not taken *the same general plan and applied it to the same purpose and produced the same effect in substantially the same mode* by merely varying the form of construction? There is no question that the sole

and only difference between the two machines is in the form of cylinder. One is corrugated: the other smooth. But they both show the same general plan applied to the same purpose, and they both produce the same effect in substantially the same way. We speak from the force of an honest conviction, when we say, we are convinced of the infringement in this case, and the lower court erred in holding to the contrary.

When we refer to the testimony in the case these views are all confirmed. Complainant produced as expert witnesses himself, C. W. Duffy, and George E. Woodbury, all mining experts. Complainant himself testified as follows :

"Q. 42. I ask you, do you consider the two cylinders equivalents of each other?

"A. I do.

"Q. 43. What would be the operation of the cylinder described in the patent, Exhibit A., in case wet or sticky ore were fed over it?

"A. That would become smooth of itself. The sticky ore would fill up the recesses, and that part of the ore would lodge in the recesses, and the roller would become smooth."

Test. of Hendy, Record fol. 41.

And so likewise the witness Duffy:

"Q. 19. What is the operation of that machine, Exhibit D?

"A. The ore flows by gravitation to the cylinder, is carried over its apex into the battery by the motion imparted from the stamp stem.

"Q. What is the function of the roller?

"A. The function of the roller is to regulate the supply of ore to the battery.

"Q. 21. What is the function of the roller in the complainant's machine?

"A. For the same purpose—to regulate the supply.

"Q. 22. Is there any difference in the construction of the two rollers?

"A. No material difference. The only difference is the corrugation in Exhibit C.

"Q. 23. Do you or do you not consider these two rollers—the feeding cylinder in the model, Exhibit C, and the feeding cylinder in the model, Exhibit D, mechanical equivalents?

"A. Perfectly so.

"Q. 24. What would be the operation of complainant's machine described in the patent, Exhibit A. in case of wet, sticky ore being fed into the hopper?

"A. In that case the corrugations would filll up and the roller become smooth in a very short time. Feeding with sticky ore the roller would become round a very little ways above the top of the corrugations."

Record, fol. 56.

And so likewise Expert Woodbury.

"Q. 9. What is the object of the corrugations or depressions in the feeding-cylinder?

"A. To better facilitate the movement of the ore.

"Q. 10. How would the machine operate if you were to remove the corrugations from the feeding cylinder?

"A. It would do practically the same work; but I don't consider it would answer quite as well as to have it smooth.

* * * * * * * *

"Q. 16. What would be the operation of the machine in case you were feeding, wet, sticky, and clayey ores?

"A. In my judgmeht the pockets or depressions between the corrugations might to a certain extent become filled.

* * * * * * * *

"Q. 38. In your judgment as a mechanical expert, is or is not the smooth cylinder a mechanical equivalent to the other (*i e* corrugated)?

"A. It is practically identically the same."

Record, fol. 78.

The only witness of any kind whatever produced by the appellees was one Crandall. His whole testimony was simply as to the comparative merits of the rival machines—he considering the smooth roller better than the corrugated. Of course that question is not material. Infringing machines are generally better than those patented. Counsel for appellees carefully avoided asking this solitary witness any questions on the subject of infringement or equivalency of the two cylinders. Not a syllable of evidence on that subject was offered by appellees. So far as the testimony of experts goes, therefore, there is no denial of our claim that the smooth cylinder is the equivalent of the corrugated.

But if this court should hold that the preceding argument is not sound, and that the first claim of our patent covers only a corrugated cylinder, and does not include a smooth one, still an infringement is apparent, even with such limited construction.

By reference to the model of appellee's machine "Exhibit D.," it will be seen that the sloping back has an inclination forward of about 45 degrees. It meets the cylinder not on the apex of its periphery, but in a line just a trifle above its axis. Hence there is a *cavity* or *depression* formed by the meeting of the sloping back and inwardly curving surface of the cylinder. The object of this construction is to form a cavity or depression for temporarily holding

the ore before it passes into the battery. As the ore slides down the sloping back it will rest in the above mentioned cavity or depression.

When the cylinder revolves that particular ore will be precipitated over the periphery into the battery, and a second increment of ore will take its place, the operation being repeated indefinitely. Thus we see that in appellee's feeder the ore, at each turn of the cylinder, is caught in a pocket, cavity,or depression,on the periphery, where it is held temporarily, and then fed into the battery. *This is identically what is done in our feeder.* The only difference is in the construction of the cavities. That is a mere difference of form. They are both intended for the same purpose. They both accomplish the same purpose in identically the same way. The cavities in each case act simply as cups or receptacles to hold the ore temporarily and prevent a too rapid feed

Hence we say, even if the claim of our patent is limited to a cylinder having pockets, there is an infringement.

When the question of infringement is critcally analyzed, it seems to us to be placed beyond a doubt.

Indeed the matter is so plain that we are well justified in doubting whether the case was decided on the theory of non-infringement. There were several other defenses pleaded and urged on the hearing, but it is not apparent upon which of them the decision was based. The learned Judge who made the decree is a most excellent judge in patent cases, and we are unwilling to intimate that he so far misconceived the elementary principles of patent law as to decide that

the smooth cylinder is not an equivalent of the corrugated cylinder. He must have decided the case on some one of the other defenses made.

II.

Alleged Anticipation of the Invention.

Two prior patents are not up in the answer as anticipating the patent in suit. Those patents are those of C. P. Stanford, No. 21,030, and Thomas A. Cochrane, No. 139,370. The first covers a shaking tray; the other a revolving belt. It is clear that they do not anticipate us. *But further, neither of said patents was offered in evidence.* Hence the defense of anticipation is abandoned by operation of law and the rules of practice in patent cases.

III.

Alleged Want of Novelty.

This defense is disposed of in the same way as the foregoing. No notice was given, either by answer or otherwise, of the evidence that would be introduced on this point, and as a matter of fact, no evidence whatever was introduced on the subject. Hence the defense falls.

IV.

Alleged Ambiguity of the Specification.

It is pleaded in the answer on information and belief: "That the description of the alleged inven-
"tion, as set forth in the specification annexed to said
"letters patent is incomplete and ambiguous, and that

"said specification does not show the method of mak-"ing and using the said alleged patented invention "in such full, clear, and exact terms as to enable "any person skilled in the art or science to which it "appertains to make or use the same." (Record folio 20).

This defense is scarcely worthy of serious notice. A mere inspection of the patent is an answer to the charge. But further: the witnesses testify that they could construct machines from the drawings and specifications of the patent, and such machines have been actually constrncted.

Test. of Hendy, Record, fol. 38.

Test. of Duffy, Record, fol. 57.

Test. of Mars, Record, fol. 87–8.

V.

Alleged Absence of Utility.

The answer denies that the invention is of any utility whatever. This objection can scarcely be urged in seriousness. The term *useful*, when applied to inventions, means the opposite of *hurtful*, *injurious*, or *frivolous*. The degree of utility is immaterial. If the invention is not hurtful, injurious, or frivolous, but is capable of being used for a beneficial purpose, that is all the law requires.

Lowell v. *Lewis*, (1 Mason, 186.)

Hoffheims v. *Brandt*, (3 Fish. 218.)

Cox v. *Griggs*, (1 Biss. 362.)

Tighman v. *Werk*, (1 Bond, 511.)

Westlake v. *Carter*, (6 Fish. 519.)

Many v. *Jagger*, (1 Blatch. 372.)

Wilbur v. *Beecher*, (2 Id. 137.)

Shaw v. *Colwell*, (11 Fed. Rep. 711.)

Kneass v. *Schuylkill*, (4 Wash. 9.)

Stanley v. *Hewitt*, (17 Frank Jr. 2nd Series 165.)

Wintermute v. *Redington*, (1 Fish. 239.)

That our invention is capable of a beneficial use admits not of a doubt. The witnesses so testify, (Test. of Hendy, Record, fol. 37; Duffey, Record, fol. 57; Mars, Record, fol. 88.)

It was contended by appellee's counsel on the trial in the court below that the Cusenbary and Mars in device is a worthless and impracticable device, and support of that assertion he cites the evidence to show that said device never went into public use. It is true that the appellant does not sell this feeder to any great extent.

The mere fact that he does not make these machines is of no moment. He is a large manufacturer of ore-feeders, and is engaged chiefly in manufacturing another kind of patented feeder called "The Challenge," which he claims to be a much better feeder. That is the sole reason why he does not push the Cusenbary and Mars device, and this he has a perfect right to do.

It has been held that the fact of non-user of a patented device by the patentee, because he had no occasion to use it, is of no moment, (*Waterman* v.

Thompson, 2 Fish. 461,); and one court has gone so far as to hold that a patentee may let his patent lie in the Patent Office without use, and no one can infringe it. (*Pitts* v. *Wemple*, 2 Fish. 10.)

But to settle this point beyond question, it is sufficient to observe that the appellees have used the invention and hence they are estopped to deny its utility.

Simpson v. *Mad River*. (6 McLean, 603.)

Vance v. *Campbell*, (1 Fish. 483.)

McComb v. *Ernest*, (1 Woods, 195.)

Kearney v. *Mehigh V. R. R.* (32 Fed. Rep. 320.)

VI.

Error of the Trial Court in the Admission of Certain Testimony.

On cross-examination of James A. Mars, one of the joint patentees and a witness produced by complainant, he was asked the following questions and gave the following answers, viz:

"Q. 2. Then if I understand you right, the part of the invention which you made was having the ribs put on the face of the feed-cylinder?

"Obj. (Objected to by complaintant as incompetent, irrelevant, and immaterial.)

"A. Yes Sir.

"Did you invent any other part of the machine?

"Obj. (The same objection by complainant.)

"A. No Sir."

Record fol. 93.

From the foregoing it was argued by opposing counsel in the Court below, and we presume he will so argue here, that the patent being granted to Cusenbary & Mars as joint inventors, and the evidence showing that the only part of the invention made by Mars was the ribs on the cylinder, therefore the patent must receive a construction which limits it to a cylinder with ribs, and does not cover a smooth cylinder.

We seasonably objected to the questions and now insist on such objection. They were wholly incompetent, irrelevant, and immaterial, as we shall now endeavor to show.

According to counsel's theory these questions were asked solely for the purpose of ascertaining the proper construction of the claim. He expressly disclaimed any attack on the fact of joint invention. But such is not the proper way to construe a patent. The construction of patents is purely a question of law; and there are two, and only two sources to which the Court may resort in construing a claim. In the first place, resort may be had to the drawings and specification, where the patentee has undertaken to state what his invention is. If the invention is there shown, indicated, and described in clear and unambiguous terms, so that its extent may be gathered therefrom, then there is no necessity to go outside the patent itself for extrinsic evidence, and no such extrinsic evidence will be admissible. In such case the claim must receive such construction as will fully cover the invention there shown. The rule of law here is the same as in case of any other written instrument, viz: where the meaning is plainly shown by the terms of

the instrument itself, parol evidence is not admissible to vary or contradict those terms. In such case there is no room for construction. The document construes itself. It must be remembered that patents for inventions are on the same footing as patents for land. They are written instruments—deeds —grants of conveyance emanating from the government, and are governed by the ordinary rules of construction applicable to all written instruments.

If, however, the specification contains terms of such technical signification and ambiguity as to render it impossible for the court to arrive at their exact meaning from the language alone, then recourse may be had to the evidence of experts, to explain those terms. In such case the extrinsic evidence does not go to any specific questions of fact, as for instance, to the direct question, what did the patentee invent? But such evidence goes merely to the general fact, applicable not only to the particular case, but to all cases, of what do those technical terms mean generally—what is their signification in mechanics? Such evidence cannot be used for any other purpose. Said Mr. Justice Grier in *Corning* v. *Burden*, (15 How. 252). "Experts may be examined as "to the meaning of terms of art on the principle of "*cuique in sua arte credendum*, but not as to the con- "struction of written instruments."

The second rule is the following:

If the language of the patent is plain and free from ambiguity and uncertainty, but as a matter of fact, *dehors* the instrument, the actual invention made is narrower than the language on its face would imply, then recourse may be had to the state of the

art. The object of such evidence is to ascertain whether the patentee has invented the application of the principle itself, and is consequently entitled to claim the application of that principle under all forms and dimensions, or whether the principle was old, and he invented only a new form of the application, and is therefore entitled to claim it only in the particular form shown in the patent. In other words, evidence of the state of the art is merely to show what was old at the time of the invention. That must be eliminated from the patent, and the residuum will be the true invention made.

The foregoing are the true and only rules laid down for the construction of patents. Let us apply those rules to the case in hand.

There is no ambiguity or uncertainty in the language of the specification. There are no technical terms which require explanation by extrinsic evidence. Says the specification: "Our improvements "consist, first, in mounting a feed-cylinder upon a "movable frame or truck." It would be idle to claim that this language needs any explanation. The specification, as already shown, then proceeds to describe in clear and precise language the best mode in which the patentees have contemplated the embodiment of their invention. They embodied it in a designated form, and did not disclaim other forms. As form was not of the essence of the invention, it covered all forms. Taking the language as it stands, we claim that it is perfectly plain, clear and specific, and there is no need for extrinsic evidence. Resort to the first rule of construction is all that is needed.

But further, the evidence of the state of the art

which was given, confirms our construction.

If such evidence had shown that smooth-faced cylinders had been used before in ore-feeders, then its effect would have been to limit the claim to a corrugated cylinder, and that is the only means by which the claim could have been so limited. But the evidence showed that no cylinder of any kind whatever had ever been used in ore-feeders prior to this invention. Cusenbary and Mars were the first to conceive of that idea. They were the first to devise a feeding-cylinder of any kind.

Taking that fact into consideration, it follows conclusively that the first claim of our patent covers all kinds of feed-cylinders, whether corrugated, smooth or polygonal.

In view of the foregoing it was error to allow appellee's counsel to ask one of the joint patentees what part of the invention he made *for the purpose of construing the patent.*

If they had denied the *fact of joint invention*, the matter might have been different: and if they desired to do that, it was incumbent on them to set it up specially in their answer. (Walk. Pat. Law, section 452.) But they expressly disclaim any intention of questioning the fact of joint invention. Having failed to do that, the fact of joint invention is beyond controversy, and the patent must be construed in the same way, and by the same rules as if issued to a single person. To allow the objectionable questions would be to allow appellees to do indirectly what they are not allowed to do directly, for the effect of

the questions would be virtually the same thing as denying the joint invention. If it requires a special plea to invalidate *the whole* of a joint invention, the same reasoning would require a similar plea to invalidate *a portion* of the joint invention.

In a word, counsel for appellees have evolved a new rule of construction for a joint patent, different from any rule known to apply to an individual patent. That rule consists in separating the invention into its constituent elements and asking one of the joint patentees what particular part he invented, for the purpose of limiting the claim to a device having that particular feature. (It must constantly be borne in mind that the questions were asked *solely for the purpose of construing the patent.*) But in case of a joint patent, where the fact of joint invention is not denied, it is wholly immaterial what portion of the device each one invented. The invention is an entirety, a unit, a whole. It has no separate or constituent elements, as between the joint patentees. They are joint tenants, not tenants in common. The interest of each extends to the whole as well as to every part. They are seized *per mi et per tout*, and not of separate estates. The hopper was not granted to one; the timbers to another—the cylinder to the first, the ribs to the second. The patent was granted to them jointly; and the attempt to pick out the specific part which each one invented, for the purpose of showing that they jointly have no right to proceed against infringers, is at once both a startling and novel innovation on the established rules of patent law. Take the case of a joint patent where there are two claims. The first may include the

matter suggested by one of the joint inventors, and the second that suggested by the other. This is not at all an unusual case. Yet if this new rule be correct, there never could be an infringement of the patent; for an infringement of neither claim would be an infringement of a *joint invention*. In answer to a suit on the first claim, the infringer would say to the patentees, "You did not *jointly* invent that claim, and, therefore, my machine does not contain any *joint* invention made by you." And so likewise in a suit on the second claim, a similar answer would come pat and prompt. Such an absurd result must be convincing of the fallacy of the argument.

To recapitulate our objections to the questions asked of witness Mars, we say:

1. The specification, being perfectly plain and unambiguous, and the proper construction of the claim being apparent therefrom, there was no necessity to go outside the patent for extrinsic evidence, and to allow such course was error.

2. The only evidence outside of a patent allowable for the purposes of construction, where the specification is not ambiguous, is evidence of the state of the art; and questions addressed to a joint inventor as to what part of the invention he made is not evidence of the state of the art.

3. To allow the objectionable questions would be to allow parole evidence for the purpose of varying the plain terms of a written instrument.

4. To allow said questions would be establishing a new rule for the construction of patents, and one

applicable to a joint patent but not applicable to an individual patent.

In conclusion we respectfully ask that the decree be reversed and the case remanded to the lower court, with instructions to enter a decree in favor of the complainant.

J. H. MILLER,

J. P. LANGHORNE,

Solicitors for appellant.

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IN THE

SUPREME COURT

OF THE

UNITED STATES.

JOSHUA HENDY,

Appellant,

VS.

The Golden State and Miners' Iron Works et. al.,

Appellees.

APPELLEES' BRIEF.

M. A. WHEATON,
Counsel for Appellees.

Filed this ..... day of ..... 1888.

Clerk

By ..... Deputy Clerk.

In the United States

SUPREME COURT.

JOSHUA HENDY,
Appellant,
vs.
THE GOLDEN STATE AND MINERS' IRON WORKS ET AL.,
Appellees.

APPELLEES' BRIEF.

This action is brought upon Letters Patent, No. 140,250, bearing date June 24th, 1873, and granted for an alleged "*Improvement* in Ore Stamp Feeders." The patent was granted to Cusenbary and Mars, as joint inventors, and conveyed by them to the appellant. The decree of the Circuit Court was in favor of the defendants in the case, and the bill was dismissed.

The answer of the defendant admits the issue and of the Letters Patent, as alleged in the bill. It denies that Cusenbary and Mars were the first

or original inventors of the alleged invention. It denies the sufficiency of the specifications, and alleges that they are ambiguous and not sufficiently clear to enable a person skilled in the art to which the invention appertains to make or use the same. The answer also denies that the invention is of any utility or value, and denies that it has been introduced into public use, or that the public have acquiesced in or acknowledged the patentees' exclusive right to the same, and avers that the patented invention is wholly useless and inoperative and was never used for any purpose whatever. The answer sets up as anticipatory matter an earlier patent granted to Charles P. Stanford, and also another patent granted to Thomas A. Cochrane. The answer also denies infringement in very strong terms.

Argument.

The evidence shows that the patentees never made or used or tested their alleged invention. This was one of the numerous cases in which the parties applied for a patent for a mere idea or plan of a machine without ever having put their supposed invention into any practical or operative form, or testing it by any mechanical construction of any kind, until after they had applied for a patent, and not even then did they make any sufficient tests to demonstrate whether

they had made an improvement or not. Even now the practicability of the plan shown in the patent rests in opinion alone, with the weight of opinion against it. The owner of the patent has long been a manufacturer of ore feeders, but has never had confidence enough in the plan developed in his patent to make an ore feeder like it. His language is that he thinks it would work, while his acts proclaim that he does not believe it will, and "*acts speak louder than words.*"

The history of the alleged invention is given in the testimony of James A. Mars, one of the patentees. (Transcript, folios 85 to 97.)

The patentees resided in California, and Mars was an assayer in San Francisco while Cusenbary had been a miner. Mars says that Cusenbary was the principal inventor, as all that Mars did was to furnish funds for obtaining the patent and advised putting the ribs upon the feed roller. About the time the patent issued Cusenbary went East and remained away from California a considerable time. While Cusenbary was away Mars had an experimental machine made. This was the first and only machine that any person ever attempted to make according to the patent. This machine was made in San Francisco, to demonstrate whether it would work as designed or not. Mars only tested the ma-

chine in San Francisco by passing coal through it at first and afterwards rock quartz. Both coal and quartz were doubtless dry, and not in the wet condition of ore as it comes fresh from the mine. He showed it to as many as one hundred miners while he was experimenting with it at the foundry in San Francisco. This was the only machine that was ever made to test the invention. The parties conveyed the patent afterwards to the complainant Hendy; but so far as either of the patentees or their grantees were concerned, the invention itself was abandoned with the making and testing of the first machine. That experimental machine was not such a one as could be built in a quartz mill for practical purposes, and practically it was an "abandoned experiment" and nothing more.

(See Transcript, at folio 96.)

The appellees' positions are—

1. That the patent is a joint patent taken out on a joint invention, and that it has not been infringed by the defendants.

2. That the patentees applied for and obtained a patent for a mere mechanical idea, and without having made any actual practical invention. That the evidence shows that the machine described in the patent and covered by

the first claim is impracticable, and will not do the work it was intended to do, and that the patent is therefore void. Also that the first claim of the patent is void, for the reasons that it is for merely mounting the feeding cylinder on a truck which any mechanic could do without the exercise of any inventive faculties; and because it covers only an aggregation of devices, and not any patentable combination.

The patent was granted to Cusenbary and Mars, *jointly*, and is granted to them for a *joint invention only*. Neither one received the patent as an assignee; but *both received it as joint inventors only*.

James A. Mars, one of the patentees, was called by the complainant, and testified as to the portion of the machine which he assisted in inventing, and swears he did not assist in inventing any other part of the machine.

None of that portion of the machine which Mars assisted in inventing is in the defendants' machine at all. This is an undisputed fact, and the complainant now asks to have the patent given a strained construction, that *shall leave out of it entirely the part which Mars assisted to invent, and* also change the claim of the patent from a claim for a combination to a claim for a single element, in order to reach the defendants' machine.

Nor is this all that the complainant seeks in this case. The complainant's own evidence shows that the machine gotten up by Cusenbary and Mars, and described in the patent, although patented, was, in fact, but an abandoned experiment. Mr. Mars testifies that he made the experimental machine mentioned about the time that the patent issued, and made some tests with it in a foundry in San Francisco. That he got a great many miners to examine it, and had a man employed to exhibit it. That he was satisfied it was a useful machine, but not one of them was ever put into a mill. The one built remained in the foundry. It was not put in a mill, because it was simply built to exhibit, and a new one would have had to have been built for a mill. Nothing more was ever done with the invention. and about five years ago, Mr. Mars disposed of his share of the patent to the plaintiff, for what he says "he considered to be a valuable consideration," but he objected to telling what it was.

It appears from the complainant's own showing that the experimental machine was tested a great many years ago, and from that time forward not another machine was ever made as described in the patent, although ore feeders of other descriptions have been constantly made and used in great quantities, and there was a demand for the

invention to fill if it had been a practical device. This clearly brings the invention under the definition of abandoned experiments, one of which it actually was, according to the authorities.

White vs. *Swayne*, 7 Wall., 685.
Howe vs. *Underwood*, 1 Fisher, 160.
Swift vs. *Whisen*, 3 Fisher, 360.

Neither did the fact that they had obtained a patent for it before any experiments were made prevent it from being an abandoned experiment. *Gloucester* I. & G. Co. vs. *Brooks*, 19 Fed. Rep., 426.

In spite of all this, the complainant has obtained the patent, and now attempts to hoist it into the position of a radical invention, that covers a new principle of operation, by obtaining for it a strained interpretation as mentioned.

The patent is for *improvements* in ore feeders only. It has two claims. The second claim is for a combination of devices, which it is admitted the defendants have not infringed (See Transcript, folio 37), where the complainant's counsel announced that he did not claim that the second claim was infringed. He has made the same announcement on page 7 of his brief on this appeal.

On page 14 of the transcript it shows that the

model, Ex. C., is not made like the patent, as to the devices covered by the second claim.

I call especial attention to this, because the complainant has made his models of the Cusenbary and Mars Machine and of the defendants machine, to look so very much alike that the Court might wonder how any claim could cover the details of one model, and not cover the other. The Cusenbary and Mars model, Ex. C., *is not made like the patent*, and the second claim of the patent does not cover either of the models.

The entire contest in this case is over the first claim of the patent, which reads as follows:

"The feeding cylinder I, mounted upon the "movable timbers H H, substantially as and for "the purposes above described."

The patent says:

"The cylinder I is made of cast metal, *and has* "*its outer surface formed into chambers or depres-* "*sions J J, which are separated from each other* by "longitudinal partitions *k*."

One question arises as to whether a feeding cylinder, which is made smooth and formed without the chambers or depressions J J, which form the periphery of the cylinder I, is the same thing as the cylinder I.

This question turns upon the construction which is to be given to the patent, under the circumstances under which it was granted.

Defendants claim that a smooth cylinder is not the equivalent of the cylinder with chambers, for various reasons.

1st. Because the evidence fairly shows that the cylinder *with chambers would not be a practical operative device.*

2d. That the patentees, having described the chambers in cylinder I as a part of their invention, they cannot now be permitted to abandon them, and claim in lieu thereof a cylinder without chambers, and

3rd. The patent being granted to Cusenbary and Mars, for an invention *made by them jointly*, and the evidence showing *that the only portion of the invention which Mars assisted in making, was the chambers which form the outside of the cylinder I, the patent cannot be construed so as to leave out of it all of that part which Mars assisted to invent.*

It is well settled that a patent taken out by two parties as joint inventors for an invention which was made solely by one of the parties, is void, and *visa versa.*

Walker on Patents, Secs. 50 and 51, on pages 472 and 473.

Barrett vs. *Hall*, 1 Mason, 447.

" " " 1 Robb., 234 and 235,

Stearns vs. *Barrett*, 1 Mason, 153, on page 171.

Stearns vs. *Barrett*, 1 Robb., 115, 116, 117.

Stemmer's Appeal, 58 Penn., 155.

Ransom vs. *Mayor of New York*, Syllabus on page 253; and the testimony on last half of page 269.

The Court here states the rule in the following concise language:

"It is also proper that I should say to you, "gentlemen, that if the invention patented by "the plaintiffs in this case, was the sole inven- "tion of one of the plaintiffs only, and not the "joint invention of both, the patent is void, and "the plaintiffs have no right to recover in this "action."

If, therefore, the patent is construed to cover a machine made entirely as described in the patent, excepting only that the feeding cylinder is made smooth and without the chambers forming its surface, the patent, under such construction, must be held to be void, upon the ground, *that such a machine was the invention of Cusenbary alone*, and was not the joint invention of the patentees.

James A. Mars, one of the patentees, was called as a witness for the complainant.

His testimony is in the record, from folio 85 to folio 98. At folio 91 he testified as follows:

"Q. Look at the model Exhibit C before you, " and state what that is?

"A. That looks like the machine we invent- " ed, some.

"Q. Do you mean the machine described in " this patent, Exhibit A?

"A. That looks like it, yes. I am not a ma- " chinist nor much of an inventor, but this cylin- " der having cleats or buckets across it, with this " clutch-wheel, is something like the machine " that we had."

At folio 92 and following, he testified as follows:

"Q. Suppose that you removed the ribs from " the feeding cylinder, how would the machine " work then?

"*Objection by Mr. Wheaton*—I object to the wit- " ness being examined as an expert, unless he is " shown to be one.

"A. I do not claim to be an expert, sir. I " do not claim to be a machinist or an inventor. " My position in this matter, as one of the paten- " tees, was the financial part of it, and at the same " time when the machine was submitted to me in

" its crude form, the suggestions that I made to " Mr. Cusenbary of having this change made— " first he had a cylinder made without any " thing to hold the quartz back, and *I suggested* " *if cleats were there*, it would prevent the dis- " charge of loose matter, slimy ore, from pas- " sing over too rapidly, as it might fall over too " fast; and *if the cleats were put there* it might feed " the battery in a more regular and uniform " manner, than a plain barrel."

CROSS-EXAMINATION.

" Q. Did you ever use those ore feeders in " mills?

" A. No, sir.

" Q. Then, if I understand you right, *the part* " *of the invention which you made was having the ribs* " *put on the face of the feed cylinder?*

" *A. Yes, sir.*

" *Q. Did you invent any other part of the machine?*

" *A. No, sir.*

" Q. Looking at the defendants' model Ex- " hibit D. You see that there are no ribs on " the feed cylinder?

" A. I see that there are not.

" *Q. Then do you see anything in the defendants'* " *model which you helped to invent?*

" A. As far as the invention is concerned, the " invention is more Mr. Cusenbary's than it is

" mine. He is really the inventor of the ma-
" chine, and, as I stated before, my part of the
" premises was the financial part of it, obtaining
" the patent for a certain interest in it; *and the*
" *suggestion that I made in relation to the cleats on*
" *that cylinder was the only part that I had in the in-*
" *vention.* We consulted together before we
" made the application for the patent, and I made
" a number of drawings, crude drawings, before we
" could get the idea to the model maker who
" made the model.

" Q. The question is now whether you see
" anything in this model, Exhibit D, which you
" personally invented or helped to invent, there
" being none of those ri'>s upon the feed roller?

" A. All that I claim to have invented on
" this machine (Exhibit C) is the cleats or
" buckets on the cylinder, and there is nothing
" in Exhibit D like them.

" Q. Then the question is easily answered?

" A. I say, No. That answer, however,
" should be modified.

" If I were shown that machine (Exhibit D) I
" should claim that it was the same invention,
" imperfect; that this was the same machine that
" we invented, without the cleats or buckets on
" the cylinder.

* * * * *

" Q. *Do you see anything in the model, Exhibit*

" *D, which you personally invented or helped to in-*
" *vent?*

" *A. My answer to that is,* NO."

Exhibit D is the model of the defendants' machine. The rule is that a patent, like every other written document, is to be construed in connection and in accordance with the *res gestæ* or surrounding circumstances.

In this case the circumstances exist and are shown without dispute or contradiction that the patent was taken out by Cusenbary and Mars for a *joint invention only,* and also that the *ribs upon the cylinder was the only part of the machine which Mars assisted to invent,* and also that the only cylinder described in the patent is a cylinder with ribs placed upon its outer surface so as to form chambers or depressions entirely around it.

The language of the claim is "The feeding Cylinder I. * * * * * * * * * * substantially as described."

"The Cylinder I," is "described" in the specifications as follows, to wit:

"The Cylinder I, is made of cast metal *and*
" *has its outer surface formed into chambers or de-*
"*pressions,* J J, which are separated from each
" other by longitudinal partitions, K."

Under these circumstances the appellees insist that the patent cannot be construed to cover a cylinder with a smooth surface not formed into chambers.

The appellant in his brief assumes the position that as Mars assisted to invent a part of the machine, that the patent was rightly issued to both patentees as joint inventors, and that the defendants could not show that they were not joint inventors without setting up such defense in the answer.

The question as thus presented in appellant's brief is not the question which we present. We are not insisting that the patent was wrongfully issued to Cusenbery and Mars as joint inventors, nor do we say that they were not joint inventors, if any invention was made.

The question we present, is a question of construction as to the patent, that is whether, under the circumstances, the patent being a joint patent, and granted to the patentees for a joint invention, can be so construed as to be a patent covering a different kind of device from any shown in the patent, *when that different kind of device does not include any part of the joint invention patented.*

Of course the object of the construction of

patents is to ascertain to what extent the patent can be construed to cover mechanical equivalents.

It is well settled that in many cases a patent cannot be construed to cover mechanical equivalents of the devices used. This occurs whenever the invention is not an invention of the device itself, but only an invention of one particular form of the device, and the cases are numerous where parties have been justly limited to the one form of device described in the patent, whether such devices are patented as single devices, or as an element in a patented combination with other devices.

The rule is to take testimony and prove just what the patentees invented, that is comprehended within the description and claims of their patents. Then all mechanical substitutes or equivalents that involve the invention are covered by the patent. In this case the patent is *limited to a joint invention.* It is shown by undisputed evidence that *no part of such joint invention is involved in the defendants' machine, either by mechanical substitutes or equivalents, or in any way.* The cleats or chambers are left off of the defendants' cylinder, and *nothing is substituted in place of them.* Nothing that Mars assisted to invent is in the defendants' machine, *nor is there in the defendants' machine any substitute or equivalent of any thing that Mars assisted to invent.*

In this particular instance Mr. Mars testifies positively and unequivocally that there is nothing in the defendants' machine which he helped to invent, and his testimony is not contradicted, nor is its truthfulness questioned by either side. The appellant claims no right to cover the smooth feeding cylinder of defendants' machine except upon the ground that it is a mechanical equivalent of the feeding cylinders with surface chambers described in the patent. The evidence given by Mr. Mars was objected to, but is not attacked in any other way. The bill charges that the patentees made a *joint invention* and patented it, and it also charges that the *defendants infringed the joint invention* thus patented. The answer *denies the infringement. The defendants do not make what is described in the patent.* Appellant tries to show that they use a mechanical *equivalent of what the parties jointly invented.* The question at once arises, what did the parties *jointly invent?* and what are equivalents of such *joint invention?* The evidence proves that the parties jointly invented a chambered cylinder instead of a smooth cylinder. The entire invention which Mars assisted in making was the chambers on the surface of the cylinder. The consequence is that no cylinder can contain the joint invention of the patentees unless that cylinder has the chambers on its surface in some form or other. We were

not trying to prove that what is shown in the patent was not the joint invention of Cusenbary and Mars, but we were ascertaining whether there could be any thing in the defendants' machine *that was not shown in the patent*, that could be an equivalent of the joint invention. We found there were none.

The complainant himself testifies *that there was no equivalent of those cleats or ribs in the defendants' machine.* (Transcript, folio 40, answer to question 40.)

Another ground the defendants take is that the smooth cylinder is a different kind of cylinder from the chamber and cylinder I, of the patent.

The history of the case, as shown by the testimony including the patents in evidence, is that Cusenbary and Mars filed their application for a patent April 21, 1873, and it was granted to them on the 24th of the following June.

About the same time Mars constructed an experimental machine, and tested it in a small way at the foundry, where it was made and kept for a time on exhibition. More than a hundred miners examined it there. It was not such a machine as could be tested practically in a mining mill.

Mr. Cusenbary was East, and the matter was left in the hands of Mr. Mars to manage. Although he had a good opinion of the machine, he could not induce any one else to invest in it in any form. The machine died there and then, and no machine has ever since been built as described in the patent.

After the Cusenbary and Mars machine had slept the sleep of death for many years, and was resting in oblivion, other parties invented a new roller feeder. It is not pretended that they had ever known anything about the Cusenbary and Mars machine. The new roller feeder was entirely original with the new inventors. They got nothing from the Cusenbary and Mars machine. It is admitted that the new machine does not infringe the second claim of the Cusenbary and Mars patent. This helps to illustrate how entirely free its creators were from any influences which a knowledge of the Cusenbary and Mars machine might have had upon their minds in making the new ore feeder.

In the new machine the cylinder is fixed in such a position that the line of the back of the hopper would, if extended, pass through the cylinder on a line just above its center. The entire cylinder is outside of the perpendicular line of ore as held in its position by the inside of the

hopper and gate A above. *A scraper was connected with the front of the roller, to keep it cleaned of wet ore, mud, etc.*

In this position the cylinder or roller B received very little of the weight of the ore, which rested mainly upon the inclined bottom of the hopper, which acted as a chute on account of its inclination. The roller did not carry the ore, but operated more as a gate to regulate its flow. The inclined back, or chute part of the hopper, reaches out a considerable distance in front of the vertical line of the regulating gate above.

The defendants' roller is not mounted upon movable timbers. The scraper is shown by the testimony of Mr. Crandall *to be a necessity, and that it could not be applied to the Cusenbary* and *Mars chambered cylinder.*

There are certain features about all ore feeders that are not new in either of these patents. Hendy testifies that they all worked by the action of the tappet, etc., etc. Also that one patent (Stanford's) had expired. (Transcript, fols. 48 and 49.)

The complainant's patent itself shows that the endless belt machines anticipated it. It says: "This feeding cylinder being made of cast metal,

" will not wear out *like the endless belts* HERETOFORE " USED IN THIS CLASS OF MACHINES," etc..

The Court cannot help knowing *that the front end of the endless belt feeds the ore over the cylinder which carries the forward end of the endless belt, and the endless belt where the ore is fed out of it, assumes the exact form and movement of the cylinder, and is in that particular place a smooth cylinder* for all practical purposes.

Taking out of the Cusenbary and Mars patent the public knowledge of ore feeders which are shown on the face of the patent and by other evidence to be prior to their invention, and there is nothing covered by either claim of the patent that is used by the defendants. The idea of the chambered cylinder is entirely discarded in the defendants' machine, and they use a smooth cylinder in *different combinations and with different effect.* Defendants combine a *necessary scraper* with their roller, which was not and *could not be done with the chambered roller.* Defendants' roller is so placed as to be a regulating gate for ore, while the complainant's is an ore carrier. The Cusenbary and Mars machine was an actual practical *failure*, while the defendants' is an actual practical *success.* Complainant is in the business of making and selling ore feeders, and has owned

the Cusenbary and Mars patent for many years, but has never made a single machine under it. It was when he found that the defendants' machines were in successful competition with his best ore feeders that he dug up this patent, a rusty, worthless, almost forgotten contrivance, that had been dead and buried and in oblivion for many years.

While not a single witness ever saw one of the patented machines at work in a mill (Transcript, folios 43, 54, 57 and 58, 74, 93 and 102), yet the defendants' machines became a successful rival with the complainants "Challenge Feeder," and he found it in competition with the "Challenge" before he brought this suit. Crandall says that it is a better machine than the "Challenge," and Hendy himself admits that they are in competition with him, but that the patented machine never was. (Transcript, folios 45, 46, 99, 100 and 101.)

The pretense that the chambered roller would fill up with sticky oil, etc., and become a smooth roller, is not borne out by the evidence. It certainly never did so in fact. The experimental machine made by Mars was not tested with wet, sticky ore. The best opinions offered, are that it would not do so, as the irregularity and differ-

ent sizes of the broken ore would prevent.' If it would do so, *it would then be outside of the joint invention* of Cusenbary and Mars, and outside of complainant's patent.

The complainant is a manufacturer of ore feeding machines, and he would not testify that a practical machine could be made like his patent. He states that it could be, *with modifications*; that he has made roller feeders, but *only with a smooth roller*.

See Trans., fols. 38, 43, 44 and 46.

Ormand Crandall was a practical workman, who had built and used different kinds of ore-feeders, and was well informed from actual and large experience whereof he testified. That the wet ore is common, in actual practice, and that it will stick to the roller is testified to, not only by Crandall, but by several witnesses, including the complainant. It is not a disputed proposition.

It is a further indisputable proposition than an ore-feeder, to be practicable, must feed the ore to the mortars with regularity, for if it does not, the mortars will become empty and damages and destruction will follow. This, the complainant himself tells us. See his testimony at folio 51.

As the ordinary wet and muddy ores would adhere to the rollers, it was necessary that a

scraper should be attached to the front, or point where the ore must leave the roller and pass to the mortar, in order to compel the ore to leave the roller at the right time and with regularity. This scraper was an absolute necessity.

Crandall further explains how the sticky ore will gather in the chambers of the patented roller, and, by being partly in the chambers beyond the reach of the scraper, and partly outside of the chambers, the pieces of rock of which the ore is composed will strike across the edge of the scraper, and the machine must stop or be broken. This explanation of Mr. Crandall is very obvious. The complainant's expert witnesses say that the ore will fill the chambers and form a smooth roller. These experts were not however practical men, and did not see as Crandall did, that the ore, being irregularly broken fragments of rock, would not protrude equal distances and form a smooth surface. The scraper would no more pass through those masses of ore protruding from but partly buried in, the chambers, than would an ordinary shovel be forced straight down into a pile of the same kind of broken rock. This is obvious to every one.

So far we have been treating the case as though the patent was for the chambered roller

as a single device. We do not, however, think the claim can bear any such construction, but that it is a claim for a combination only.

The claim is for—

"The feeding cylinder I. mounted upon mova-
" ble timbers H H, *substantially as, and for the*
" *purposes above described.*"

The specifications referred to in the closing part of the claim explain "the purposes" of mounting the cylinder I, upon the movable timbers, in very plain terms. They say:

" Our improvements consist, first, in mounting
" a feed cylinder upon a movable frame or truck,
" *so that it can be readily shifted from place to place,*
" when it is desired to repair the mill, and, lastly,
" of an improved arrangement for operating the
" pawl rod by the drop of the stamp without the
" use of springs."

The foregoing are the patentees' declarations of what their invention was. It consisted of two parts. The first part was mounting a chambered feed cylinder upon a movable frame or truck, *so that it could be readily shifted from place to place.*

This first part of what the patentees assert was the first part of their invention, is exactly covered by the first claim of their patent. The

remainder of what they thus declare to be the other part of their invention is exactly covered by the second claim of their patent, and it is admitted that the defendants do not infringe that second claim.

The purpose above described, of so mounting the feed cylinder, is again repeated in the specifications as follows, viz:

"" H H are the foundation timbers upon which " the feeding cylinder I is mounted. These tim- " bers are mounted *upon rollers, so that the cylinder* " *and frame can be moved about* as desired."

We will repeat and put these portions of the patent together, the better to show the patentees' own explanation of the part of the alleged inventions that was covered by the first claim, to-wit:

" Our improvements consist, first, in mounting " a feed cylinder upon a movable frame or truck, " so that it can be readily shifted from place to " place, when it is desired to repair the " mill. * *

" In order to more fully illustrate and explain " our invention, reference is had to the accom- " panying drawings, forming a part of this speci- " fication. * *

" H, H are the foundation timbers upon which " the feeding cylinder I is mounted. These tim-

" bers are mounted upon rollers, so that the " cylinder and frame can be moved about as de- " sired.

" The cylinder I is made of cast metal, and has " its outer surface formed into chambers or de- " pressions, J J, which are separated from each " other by longitudinal partitions, K.

" Having thus described our invention, what " we claim and desire to secure by letters pat- " ent is:

" 1st. The feeding cylinder I, mounted upon " the movable timbers H H, substantially as and " for the purpose above described."

It is too plain for argument, that there is nothing in the foregoing described invention or claim that covers anything except the combination of a chambered cylinder mounted upon the " timbers H H," where they constitute a "frame" and are mounted upon rollers so as to form a " truck," and that there is nothing in this claim that is found in the defendants' machine. There is no such co-acting between the chambered cylinder and the rollers as to form a patentable combination. (See Transcript, folios 80, 68, 69, 70.

It is also too plain for argument that the claim does not cover any patentable invention. Merely mounting a cylinder of any kind, that revolves

upon ordinary journals, upon an ordinary frame, is no invention, nor does the machine involve invention when the frame is mounted upon ordinary rollers so as to make it movable from place to place.

Pennsylvania R. R. Co. vs. *Locomotive Engine Safety Truck Co.*, 110 U. S. 490, and the long list of cases cited by the Court as authority on page 494.

Bussey vs. *Excelsior Manufacturing Co.*, 110 U. S.. 131, and pages 145 and 146.

The patent is ambiguous if it attempts to cover anything more than a combination of the feed roller with the movable timbers. It being a combination patent, as we claim that it is, then of course by force of law each element is admitted to be old, and there is no infringement unless both the elements were used by defendants. The elements of the claim are the movable timbers and the cylinder. The timbers are movable, as the patent explains, *because they are mounted upon rollers.* These movable rollers the defendants have never used, and therefore they have not infringed the combination. If the claim be construed to be for the combination, the case is easily disposed of; as—

1st. The elements are but an aggregation, do

not act conjointly, nor co-act upon each other, and do not form a patentable combination, and therefore this claim of the patent is void. And,

2d. The defendants have not infringed, because they have not used the combination. In fact, they have never used either the movable timbers I, I, or the chambered cylinder claimed. They have not used either the combination or either element of it. There is every reason for asserting that the claim covers the combination of the cylinder and timbers, instead of covering the cylinder itself. In the first place, such is the natural meaning to be given to the language of the claim. In the next place, the patent declares that the inventions consist of *improvements in ore feeders*, and that the *first improvement consists in mounting the cylinder upon a movable frame or truck*, so that it can be *readily shifted from place to place*. The object of this part of the invention (and it is the only part that is claimed to be infringed) is to mount the entire feeder upon wheels, so that it can be "*readily*" shifted around. The movable frame or "truck" is mounted on rollers. The object of this part of the invention, as stated in the patent, is *not to feed the ore to the battery, but* it is to make the machine *easy to transport when no ore is being fed*. The movable "TRUCK" has

nothing to do with the process of the feeding of the ore. *It is only used when there is no feeding going on.* Hence either the movable "truck" is an element in the combination or it is no part of the invention and the specifications of the patent are false. The claim is "the feeding cylinder I, mounted upon the movable timbers H H, substantially as and *for the purposes described.*" The only "purpose described" for the mounting is to *faciliate the moving of the entire feeder when it is not feeding ore.* This *purpose* can not well be ignored. The patent shows that not only the cylinder, but the hopper and entire feeder is carried upon the "truck."

Besides what the patent states the complainant Hendy says that "the main feature of the invention is the mounting of the cylinder upon a movable frame." Transcript, folio 36.

Appellants' counsel also considers the claim as a combination claim only, and that the elements were combined for the purpose of making the machine "*portable.*" Pages 13 and 14 of his brief distinctly so declares. On page 14 the brief says in reference to the feed cylinder of the patentees: "They saw fit, however, *to claim it only in* "*combination* with a *portable* feeder, *thus restricting*

" *the claim to that extent.* But the claim is none " the less valid, and we are willing to accept that " construction."

The explanations of Hendy, Duffy and Woodbury, as to the principle and operation of the *whole feeding machine* that is shown in the patent, are irrelevant, since the patent does not cover the machine *as a whole.* Besides this, the *whole* machine includes *all the parts mentioned in the combination of its second claim, which it is admitted the defendants have not infringed.* The combination of the first claim which it is claimed that we have infringed is not explained by the experts to any appreciable extent. In fact, it needed no explanation, and hence expert testimony was out of place in the case for any purpose.

We claim, therefore, that the first claim of the patent is void, because it was not invention to mount the feeder upon rollers. (See Transcript, folio 69.) Also, because the claim covers an aggregation only, and not a patentable combination.

We also claim that there was no infringement, because the defendants did not use any timbers or frame that was mounted upon rollers, nor any "truck" in any form; neither did they use any

chambered cylinder, nor did they use the combination claimed in the said first claim.

Respectfully submitted,

M. A. WHEATON,
Counsel for Appellees.

27-378

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IN THE

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REPLY BRIEF OF APPELLANT.

—BY—

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APPELLANT'S REPLY BRIEF.

The brief filed on behalf of appellees is so loose and disjointed and so inartificially arranged, that it is a matter of no small difficulty to frame a methodical reply. However we shall do the best we can in that regard.

Counsel begins his "Argument" (p. 2) with the assertion. "The evidence shows that the patentees "never made or used or tested their alleged inven-"tion."

This is a bald assertion wholly unsupported by the evidence. And right here we desire to call the Court's attention to the fact that in a very few instances only does counsel give any references to the Record to support the assertions made by him in his brief. At different places in said brief he states that the invention is for "a mere idea" (p. 2); that the practicability of the plan shown in the patent rests in opinion alone, with the weight of opinion against it (p. 3); that the machine was not tested with wet ore (p. 4); that the invention was an abandoned experiment (p. 6); that the ower never had sufficient confidence in it to build a single machine (p. 3); that the model Exhibit C is not made like the patent (p. 8); that a cylinder with chambers would not be a practical operative device (p. 9). Besides the foregoing, many other assertions are founded in appellees' brief which are wholly unsupported by the evidence.

As there is no methodical arrangement of the so-called defenses found in appellees' brief, we shall endeavor to arrange them ourselves so as to frame an intelligent answer thereto.

As near as we can figure out, appellees' positions are the following:

I.

That the patented invention was never tested in any manner and the best opinions show that it is wholly inoper-

ative and impracticable, of no utility whatever, and nothing more than an abandoned experiment.

This defense is not true as matter of fact. Both inventors were practical mining men. Mars being an assayer of ores and Cusenbary a miner (fol. 86, ques. 6, 7 and 8). They built one machine (fol. 87, ques. 12). It was full working size (id. ques. 13), and tested the invention, it worked satisfactorily to every mining man who saw it (fol. 88, ques. 17). First ran coal through it, then quartz, more than a hundred miners saw it (id. ques. 18, 19). The test was satisfactory to all (fol. 89, ques. 21, 22). The patentees were poor and needed money. They had no funds with which to manufacture the machines, and soon after the grant of the patent they sold it to Joshua Hendy (fol. 90, ques. 25, 26, 27). Patentee Mars says: I sold it "because I wanted money; that is why I sold it; "not that I did not think it a useful machine, but "I didn't have the means to push it, and it takes "money to push any kind of a patent. You have "got to build machines and introduce them, and I "did not have money to do it" (fol. 90, ques. 27). "We did not manufacture them from sheer inabilty "on our part" (fol. 95, ques. 11).

From the foregoing it is perfectly clear that the failure of the patentees to introduce the invention is no evidence of its lack of utility.

The fact that the purchaser of the patent, Joshua Hendy, did not make the machines is of no moment. He was engaged in making ore-feeders of a different kind, called the "Challenge," which he considered not only better than these, but the best in existence. He had a perfect right to buy up patents for competing machines so as to get them out of competition (see *Waterman v. Thompson*, 2 Fish, 461. *Pitts v. Wemple*, Id. 10).

Further, the evidence shows that the patented feeder is a practical operative device. Complainant Hendy so testifies (fol. 37, ques. 24 et seq). Mr. Hendy is an expert in ore-feeders, and perhaps knows more about them than any other man on the Pacific Coast. His opinion is entitled to weight. The witness Duffy testifies that the two cylinders are mechanical equivalents (fol. 56, ques. 23) and that the corrugated cylinder would perform the functions claimed in the patent (fol. 57, q. 25). The witness Woodbury testifies that the patented feeder is a practical operative device and is better than the smooth cylinder (fol. 73, ques. 10; fol. 78, ques. 34, 5, 6, 7, 8).

In view of the foregoing, it is idle for counsel to assert that the patented feeder is not a practicable operative device, but is an abandoned experiment. His solitary witness Crandall is himself an infringer, having made the machines for respondents, and hence his testimony is not entitled to much consideration.

II.

That the invention is anticipated by the endless belt patent of Thomas A. Cochrane.

This is set up in the answer; but, as stated in our opening brief, *this patent was not offered in evidence.* Counsel seeks to avoid this difficulty by saying, at page 21 of his brief: "The Court can-"not help knowing that the front end of the end-"less belt feeds ore over the cylinder which car-"ries the forward end of the endless belt, and the "endless belt where the ore is fed out of it as-"sumes the exact form and movement of the cy-"linder, and is in that particular place a smooth "cylinder for all practical purposes." From this he argues that the patent in suit is anticipated by the endless belt patent of Cochrane. What is the ground for the above assertion we fail to perceive. Certainly it is not a matter of which the Court can take judicial notice, and the patent itself is not in evidence. Counsel is asking this Court to decree a patent in suit to be anticipated by a prior patent, when there is no evidence to show what the prior patent is except the counsel's own statement in his brief.

III.

That the smooth cylinder is not an infringement of the corrugated cylinder.

This is another position advanced by appellees. We have already discussed this question at length in our opening brief, and we refer the Court thereto. There is an additional point, however, made by appellees, which we will devote a word to. It is claimed that the smooth cylinder is a different kind of cylinder from the corrugated, because it has a scraper connected with it to keep it cleaned of wet ore and mud (see appellee's brief, pp. 18–22). This fact is claimed to protect them from infringement. In other words, the appellees have used all the elements of our invention, but have added thereto another element to make the device work better. A bare statement of the proposition is its own refutation.

IV.

That the first claim is void because it is for merely mounting a feed cylinder on a truck, which any mechanic could do without the exercise of any inventive faculty.

Counsel assumes that each of the elements of the patented combination was old. In this he is wrong.

In Patent law there is a class of combinations in which one of the elements may be new and the others old. Judge Clifford, in giving his famous classification of machines, defines as one of those

classes, "Machines which embrace a new element "and a new combination of elements previously "used and well known."

Union Sugar Refinery v. Matthiessen (2 Fish. 605).

And so likewise in *Lee v. Blandy* (2 Fish. 93), Judge Leavitt referred to the same kind of combinations.

See also—

Sellers v. Dickinson (6 Eng. L. & E. 544).
American Co. v. Sutherland (5 Bann. & A. 348).
Gallahue v. Butterfield (5 O. G. 64).
Ex Parte Baker (Com. Dec. '73, p. 127).

Now, in the case at bar the feeding cylinder was a new element. *It had never been used in ore-feeders before. Cusenbary aud Mars invented it.* Their invention did not merely consist in mounting a feed cylinder on movable timbers, but also consisted in devising the cylinder itself. Their claim is of that kind of combination claims spoken of by Judge Clifford and above referred to. Counsel argues that it required nothing more than ordinary mechanical skill to mount a cylinder on movable timbers. That might be true if feed cylinders were old and well known. But such was not the case. Cusenbary and Mars were the first to use a feed-cylinder of any kind. It was not an

old element. The invention did not consist in uniting two old elements into one combination; but it consisted in the invention of a distinctly new element, never known or heard of before, and uniting it with an old element into a combination. The patentees were entitled to claim the cylinder as a single element, had they seen fit to do so; but they have claimed it in combination with another element. The case is similar to that of *Russell & Irwin Manuf. Co. v. Mallory* (5 Fish. 632), where the invention was a latch, so constructed that without taking it out of its case, it could be turned over and made adjustable for either a right-hand or left-hand door. The claim was: "The combination of a lock and latch when "the latch-bolt and its operative mechanism are "arranged in a case or frame independent of the "main case, and constructed so that the latch-bolt "may be reversed, etc., without removing said in-"dependent case from the main case."

The latch was entirely new. It was never known before, and the patentee was the inventor of it. It will be observed, however, he did not claim it as a new element, but claimed it in combination with other elements, which were old. The Court held that the latch being new, it was open to the patentee to claim it broadly as a single element, in whatever possible combination it might be used, and he was also at liberty to claim it, as he had done, in combination with other

elements. He had unnecessarily restricted his claim, but it was none the less valid.

This is our case exactly. Cusenbary and Mars were the inventors of the cylinder. They were entitled to claim it broadly as a single element, in whatever connection used. But having claimed it in combination with other elements renders the claim none the less valid.

V.

Question of Aggregation.

It is contended that the disputed claim is an aggregation, and not a patentable combination, of elements. This contention is in our judgment wholly frivolous, as will be readily seen by a reference to the authorities.

A combination exists where several elements, united in one machine, co-act in the production of of a single ultimate result. Each element enters into and modifies this result. Mr. Justice Matthews, in speaking of the elements of a combination, has graphically said: "They must be "joint-tenants of the domain of the invention, "seized each of every part *per my et per tout*, and "not mere tenants in common with separate inter-"ests and estates." (*Pickering* v. *McCullough*, 13 O. G. 818.)

Aggregation, on the other hand, is mere juxtaposition of parts. It is where several elements

are brought together in one machine and each one produces its separate and appropriate result without aid from the others. As many results are produced as there are elements. No single ultimate result is produced, but merely the sum of the separate results of the various parts. Thus in *Hailes* v. *Van Wormer* (20 Wall. 353), the patentee took a fire-pot from one stove, a revertible flue from another and a feeder from a third, and united them all together in a new and improved stove. But these three elements did not bring about a common result. One radiated the heat, another carried off the products of combustion, and the third economized the fuel. Each acted separately; each produced a separate result. Any one could be dispensed with without impairing the value of the others. Hence there was a mere aggregation.

And so likewise in *Slawson* v. *Grand St., Prospect Park and Flatbush R. R. Co.* (5 Bann. & A. 210; S. C. 17 Blatch. 512), it was held that the placing of a window in an ordinary street-car farebox was a mere aggregation.

Another familiar instance is the lead pencil case of *Reckendorfer* v. *Faber* (92 U. S. 347); and also the fire-lighter case of *Alcott* v. *Young* (16 Blatch. 134); and the patent office has repeatedly held that mere assemblage of different tools on one frame or handle is aggregation. (*Ex parte*

Castle, Com. Dec. 1873, p. 132; *Ex parte Morse*, id. 81.)

The best instance of the distinction between a combination and aggregation is found in the difference between a chemical compouud and a mechanical mixture. Bring together in proper proportions two elements which have a chemical affinity, as for instance chlorine gas and caustic soda. They will unite and form a new and different substance, to-wit, chloride of sodium, or common salt. But bring together two elements which have no affinity, as for instance chalk and powdered glass, and they never will unite. Into however close a juxtaposition you bring their atoms, they will always remain the same substances—chalk and glass.

It is also to be remarked that it is not material in what proportion each element contributes to the ultimate result in a patentable combination. If it contributes thereto in any degree whatever, that is sufficient.

Apply these principles to the claim under consideration. The object of the movable timbers is twofold: first, to support the cylinder and hopper; second, to move it from place to place. The cylinder would be useless without supporting timbers. It is not self-operative. It could not be suspended in mid-air. Hence the timbers materially contribute to the ultimate result, which is feeding ore over a cylinder.

Thus, in the case of *McKisson* v. *Carnrick* (19 Blatch. 158), the invention consisted of an improved pill-machine, consisting of a series of moulds or receptacles for holding the pills and a comb-bar provided with downwardly projecting teeth containing needles. Pills were placed in the moulds, and by means of a suitable mechanism, the comb-bar advanced and the needles pierced the pills and lifted them out of the moulds. The claim was for "the combination of the moulds A with the comb-bar B," etc. It was contended that this was an aggregation, because there was no co-action between the moulds and the comb-bar. But the Court upheld the combination, because the moulds held and supported the pills while the needles pierced them. At the moment of impalement there was a conjoint action.

And so likewise a machine for driving nails, which consisted of spring-jaws for holding, and plungers for driving the nails, was held by this Court to present a case of legitimate combination. (*Wicke* v. *Ostrum*, 103 U. S. 461.)

Our case is not different from the foregoing. The timbers hold and support the cylinder and thereby contribute to the ultimate result, which is feeding ore over a cylinder. The combination of the cylinder with a new and particular construction of the journals, or the shaft, or the hopper, would be legitimate. Then why not the combin-

ation of the cylinder with the supporting timbers? When the cylinder revolves and feeds ore, the timbers materially assist in the work. They co-act with the cylinder in the same way as the pill-moulds and spring-jaws above referred to. The fact that they are capable of another function, viz., mobility, does not destroy the patentability of the combination. True, that function is not exhibited when the cylinder is in operation, but the function is still there, the timbers are still movable, that is, capable of being moved. The cases are numerous where one element is capable of a double use. Thus, as was said by Mr. Justice Hunt in *Reckendorfer* v. *Faber* (*supra*):

"A stem-winding watch-key is another instance (of combination). The office of the stem is to hold the watch or hang the key to the watch; the office of the key is to wind it. When the stem is made the key, the joint duty of holding the key and winding the watch is performed by the same instrument, a double effect is produced; or a double duty performed by a combined result. In these and like cases the parts co-operate to produce the final result. The result comes from the combined effect of the several parts, not simply from the separate action of each, and is therefore patentable." The mere fact that when the stem was not being used as a key, that function was latent, was immaterial. And so likewise in a sewing-machine, where one part advances the cloth

and the other forms the stitches; and in a saw-mill where the frame advances the log and the saw cuts it, we recognize patentable combinations. In the first case, the feeding device performs two functions—it advances the cloth up to the needle and then holds it beneath the needle for the stitch to be made, and in the saw-mill, the frame advances the log up to the saw and then holds it there for the incision.

It is to be remembered here that in a combination it is not esssential that the various elements act simultaneously. They may act successively. Said the Court in *Hoffman v. Young* (5 B. and A. 316): "By the term co-operate, however, the "Courts do not mean merely acting together or "simultaneously, but unitedly to a common end— "a unitary result." And to the same effect are the following: *Forbush v. Cook* (2 Fish. 668); *Herring v. Nelson* (14 Blatch. 293); *Hoe v. Cottrell* (5 B. and A. 260); *Birdsell v. McDonald* (6 O. G. 682).

In the case at bar not only do the timbers actually co-operate with the cylinder during the feeding process, so far as supporting the cylinder, but they also co-act with the cylinder in carrying it from place to place. This action is not simultaneous with, but successive to the action of the cylinder, within the language of the case cited, *supra*. The cylinder must be carried or moved to the battery before it can operate. That is a part of the operation of the entire device, and in this

sense, too, the movable timbers contribute to the ultimate result of feeding ore, just as in the sewing machine case, where one element advances the cloth to the needle, and in the saw-mill where the frame moves the log to the saw. In all of these cases the functions of the several elements are successive, not simultaneous, but they unitedly produce one ultimate result. This is all that the law requires for a patentable combination.

VI.

Alleged ambiguity of the specification.

This point has been fully discussed in our opening brief, and it will not be necessary to advert to it further at this point.

In closing this brief, we desire to emphasize and call attention to a point made in our opening brief and contained between pages 27 and 29 thereof, which is this: If the Court should construe the claim of our patent to cover only a corrugated, and not a smooth cylinder, still there is an infringement. It will not be necessary to repeat here the argument used there; and hence we simply refer to it.

Respectfully submitted,

JNO. H. MILLER,
J. P. LANGHORNE,
Solicitors for Appellants.